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THE IRON TRADE REVIEW

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Vol. LXIII No. 19

CLEVELAND, NOVEMBER 7, 1918

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Four Dollars a Year
Single Copies 15 Cents

IT is unthinkable that there should be any slackening in the outpouring of Munitions, Ordnance or Supplies to our boys "at the front"---Yet this is what occurs when the factors of EFFICIENCY and QUALITY are overlooked in purchasing High Speed Steel.
"Red Cut Superior"
The Nationally Known--First Quality
High Speed Steel
more than equal to every demand and strain of war time service---deep cuts and heavy feeds, at speeds to the full capacity of your machines, and Long Life of the cutting edge---these are a few of the reasons for the supremacy of Red Cut Superior
VANADIUM-ALLOYS STEEL CO.
WORKS: LATROBE, PA.
GENERAL SALES OFFICES, PITTSBURGH, PA.
If interested in High Speed Steel matter at intervals, send us your
and you care to receive our printed name and address for our mailing list

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"Where-to-Buy", page 136
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Classified Advertisements, pages 199-221

THE KOPPERS COMPANY

ANNOUNCES that the name of the Company has been changed from H. KOPPERS COMPANY to THE KOPPERS COMPANY. There has been no change whatever in the organization or business. The Company is equipped to build by-product coke and gas plants, benzol and toluol recovery plants, ammonia recovery apparatus, tar distilling plants and to deliver repair and renewal parts for the above plants.

September 16, 1918

Union Arcade,
Pittsburgh, Pa.

THE IRON TRADE REVIEW

Vol. LXIII Cleveland, November 7, 1918 *No. 19*

Peace Problems Forging to Front

Clearly Foreshadowed End of Hostilities Starts Readjustment Processes in Iron and Steel—Various Cancellations Made—Freer Selling Policies Being Pursued —October Iron Production Gains But Misses High Record

GERMANY'S surrender clearly having been made a question only of time by the stupendous events of the past week, the iron and steel industry more squarely is being brought face to face with the realities of readjustment. The bewildering rapidity by which international affairs have reached their present stage has intensified the initial uncertainty and suspense but calmer reflections have been exercising a due measure of restraint. The cardinal fact that virtually every ton of iron and steel now being produced continues to be demanded for war or essential purposes, is a steadying influence. Trade fears are not those of the effects of peace but of the uncharted period of transition from a war to a peace basis. Authoritative expressions from Washington show that this situation already is receiving consideration in the highest circles. The belief has been strengthened that present governmental regulation will be extended in some form in an effort to stabilize trade conditions after peace. High steel authorities believe that a plan of this sort is urgently essential and there is more discussion of the advisability of setting minimum price levels to succeed the present maximum rule.

Cancellations Appearing

The vital necessity of upholding high speed production continues to be sounded by the government. The ordnance department within the week has sent a general call to the producers of ammunition to drive output to a higher level to make up for the huge drafts upon supplies created by the protracted allied drive. It is pointed out the replenishing of stocks are the best guarantee of armistice or peace conditions. Actual cancellations of war business have been comparatively light. An order for 15,000 tons of military barbed wire for the British has been rescinded and 65,000 tons for Italy has been held up. Substitution clauses in shell steel contracts are being brought forth for possible early application. Work on the Neville Island ordnance plant has been held up except where irreparable loss would result. The extending revision of the shipping program which is aimed at the building of only the larger vessels involves a considerable recasting of mill schedules to conform to the changed requirements in steel. Jobbers have been cancelling some orders on mill books in various sections.

Huge Inquiry for Iron

Nothing so sharply marks the continuing heavy dependence for supplies on this country by the allies as the latters' numerous demands for pig iron now current. Great Britain is negotiating through the government for 750,000 tons of basic iron for delivery over the first half of 1919. This is probably the largest single inquiry ever put before American iron producers. It carries forward the demand which up to Jan. 1 is being covered by an order for 180,000 tons now being filled on this side. With the pressure for pig iron so intense it will be a practicable impossibility for the country to spare the huge tonnage of steelmaking iron required without a corresponding adjustment of the British orders for rolled steel now with American mills. Against Italy's 100,000-ton inquiry for iron, 30,000 tons have been obtained. France now is out for 26,000 tons of bessemer.

Iron Output is Greater

October exceeded the high record mark of September in pig iron production by 68,093 tons, but failed to establish a top record for any month in history by approximately 27,000 tons. Effects of the influenza epidemic especially in Pennsylvania were a restrictive factor. October's output of 3,481,316 tons was the second largest in history and compared with 3,508,180 tons in October, 1916, the record month. The average daily production in October was 112,301 tons, compared with 113,774 tons in September.

NOVEMBER 7, 1918

THE IRON TRADE REVIEW

A weekly publication devoted to the Iron, Steel, Foundry and Metal-working Industries

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Machine Tool Future Bright

BULGARIA was the charter member of the new Surrendist club. Turkey subscribed later to its unconditional constitution and by-laws. Austria-Hungary also has gained admission. It remains to be seen whether Germany will join this particular "league of nations" at the dictation of Major General Foch. She now is on the waiting list. With the formation of this club, rays of sunshine are beginning to pierce the rifted war clouds which have hung heavy so long over many nations. Minds of industrial leaders in the United States are being trained upon the post-bellum period. Many problems of readjustment and reconstruction loom ahead. One of the chief of these is how the enormous wartime demand for machine tools will be absorbed.

In the event of peace, the cancellation of many shell and gun contracts is anticipated. It is thought by some that the government will allow contracts to run out and either store the armament and projectiles or use it in coastal defense. If these stocks were stored the quantity probably would not be as large as present production might suggest. Rigid tests and examinations by inspectors would reduce considerably the amount of material accepted. In some cases, this keen scrutiny undoubtedly would serve as an automatic cancellation.

As it was necessary for peacetime plants to divert their product into wartime channels when war broke out, so will it be necessary for war plants to revert back to a peaceful operation. A large midwestern plant now operating on a 100 per cent war work basis began several months ago to plan a farm tractor department, on which it will concentrate when the end of the conflict comes. Many such conversion processes are now only on paper but are looked to by the machine tool builders to sustain the demand for equipment when the urgent calls on capacity production from war work have subsided.

That many avenues will open up to offer the solution of the equipment dealers' and builders' problem is forecast. Railroads and shipyards will take many replacement machines. Farm tractors are to be called into use on a scale never imagined before the war. Who may venture to prophecy the possibilities of the airplane? One prominent dealer in northeastern Ohio has stated he is seriously considering buying an airplane, hiring a returned soldier from the air service, and sending him out on the road to solicite trade. Markets in South America for machines will be large. The rebuilding of France and Belgium particularly from an industrial standpoint is expected to fill the order books of many American plants. The future of the machine builder and dealer it would seem is reasonably assured and the opinion of one maker that an end of the war will spell disaster to his business finds little acceptance in the general industry.

Time for Poise and Patience

RESTORATION of peace is looming up before general industry as a problem comparable to the situation which faced it at the beginning of the world war over four years ago. War and the abnormal needs of war have been so thoroughly absorbing the productive capacity of the country that they have wrought a complete transformation of its industrial activity. The whole country has been adjusted to that condition. Now swiftly-moving events bringing peace within the realm of early and strong possibility have come as somewhat of a shock. They have made it only too plainly manifest that the re-establishment of a peace basis will involve a tremendous reverse movement which will reach into every channel of trade or commerce.

Great problems, therefore, lie before the country for the near future and the present time properly is one for deep and serious thought. It is, however, not a time for radical views either optimistic or pessimistic. Since it required a long period for the nation to put itself wholly on a war footing like-

wise the process of recovery of normal life promises to be extended. The best opinion now expressed is that no abrupt or precipitate changes may be expected, but that all movements of great importance will proceed in an ordinary way allowing ample time for the average business man to make his individual readjustment to a new and unprecedented era, which to all appearances is about to unfold. All the talk from Washington is that the higher circles of the government fully appreciate the great and intricate process through which industry must go before it may assume its normal character. There is every possibility that governmental agencies will be established which will materially lessen the shocks of the transition period. Wherever one may look he sees the nation emerging from the conflict mightier in every way, refreshed and clearly with a new and greater mission in world affairs before it.

The country is rapidly approaching the hour when it shall need urgently able leadership, broad vision and complete sanity. Just now it calls most for praise and patience.

What Will the Government Do?

ONE of the important features of the war has been the manner in which the government has kept small industries busy and how it has aided indirectly in establishing a multiplicity of new ones. The economic question has been a large factor in the movement, with the result that if the war should end tomorrow we would not have a few establishments of enormous wealth and productive capacity and a host of little ones bankrupt, but all, both great and small, in a flourishing condition.

The government has been wise in providing business for plants of small capacity. It has insisted that when a large contract has been let to a large concern the latter shall sublet some of the work to smaller contractors. There have been innumerable instances of this kind; instances where it was shown that a small plant must be closed unless it obtained work from the government. The plant's capacity might have been so limited that the government could not afford to waste time in determining the kind of work the plant was capable of doing and then giving a contract commensurate with that capacity. But it has seen to it in thousands of such cases that the larger producers shall share with the smaller, in order to keep all in going order. A rather benevolent attitude was shown, which, however, was considered good business logic from the standpoint of the country's commercial interests as well as from the government's desire to obtain quantity production.

Now the question arises as to what is to become of this brood of fledglings the national bird has hatched when the sword is again beaten into the plowshare. The promises of the reconstruction period are buoying up the spirits of some but these shops cannot depend so much on them as they have on the realities of war. The fact is that a great many of these plants anticipate a reaction when work will not be so abundant, and others which were built up entirely for war purposes see the possibility of closing if they cannot be converted quickly to other pursuits. Many have provided for such emergency.

In this situation can the government which fostered and protected these enterprises desert them at the expiration of the war? In other words, can it afford to commit itself to a survival-of-the-fittest policy and expose the multitude of these industries to disaster? Labor is no less concerned in this question than capital. The war may have been a trying period for American industries, especially those of smaller calibre, but the new era will be no less critical and it calls for the wisest judgment of those in power in Washington. On the policy to be adopted in regard to international trade may depend whether this country and all its industries are to go forward safely under full steam or whether we shall have more wrecks than the war period ever threatened to produce.

Service

ON Tuesday evening, Oct. 29, there was announced at Washington by the priorities committee what is known as supplement No. 2 to circular No. 4 of the priority regulations of industry. This supplement embracing many new and amplified points to the priorities system was one of the most important pronouncements yet made by the government authorities. Inasmuch as the regulations of priority have been a vital matter for all industry, the general importance of the new circular has been tremendous. Appreciating this, THE IRON TRADE REVIEW arranged to transmit the circular from Washington to Cleveland by special messenger as the mails could not be depended upon. Sixteen hours after the circular was handed to Washington representatives of this publication the matter was on the linotype machines in Cleveland. Two hours later it was going through the presses and bindery and from them into the mails as part of the Oct. 31 issue of THE IRON TRADE REVIEW.

This, in brief, tells the story why THE IRON TRADE REVIEW was able to convey this important announcement to the iron and steel and affiliated industries one day ahead of its nearest competitor.

Iron and Steel Prices

Corrected to Wednesday Noon

SCRAP, WAREHOUSE AND IRON ORE PRICES ON PAGE 1098

PIG IRON

Bessemer, valley	$35.20
Bessemer, valley, del. Pittsburgh	36.60
Basic, valley	33.00
Basic, valley del., Pittsburgh	34.40
Basic, delivered eastern Pa.	36.90
Basic, Buffalo, furnace	33.00
Malleable, valley, del. Pittsburgh	35.90
Malleable, Chicago, furnace	34.50
Malleable, Buffalo, furnace	34.50

GOVERNMENT SCHEDULE

1.75 to 2.25 silicon (No. 2 foundry, No. 2 plain, and No. 3 southern), $34 furnace base.

2.25 to 2.75 silicon (No. 2X, No. 1 Northern foundry, and No. 2 southern), base plus $1.25 or $35.25 furnace.

2.75 to 3.25 silicon (No. IX), base plus $3.00 or $37 furnace. $3.25 to $3.75 section base, plus $5 or $39 furnace.

3.75 to 4.25 silicon, $40.00 plus $1 for each ½ per cent of silicon up to per cent.

No. 1X, delivered Philadelphia	40.60
No. 2, valley del., Pittsburgh	35.40
No. 2 foundry, Cleveland furnace	34.00
No. 2 foundry, Ironton furnace	34.00
No. 1 foundry, Chicago furnace	35.25
No. 2 foundry, Chicago furnace	34.00
No. 2X, eastern del., Phila.	39.15
No. 2X, eastern, N. J. tidewater	39.35
No. 2X foundry, Buffalo furnace	35.25
No. 2 plain, del. Philadelphia	37.60
No. 2 plain, N. J. tidewater	37.80
No. 2 southern, Birmingham	35.25
No. 2 southern, Cincinnati	38.85
No. 2 southern, Chicago	40.25
No. 2 southern, Phila.	41.75
No. 2 southern, Cleveland	40.25
No. 2 southern, Boston	43.25
No. 2 southern, St. Louis	39.50
Virginia, No. 2X, furnace	37.50 to 38.50
Virginia, No. 2X, Phila.	41.85
Virginia, No. 2X, Jersey City	42.15
Virginia, No. 2X, Boston	43.25
Gray Forge, valley, del. Pittsburgh	34.40
Silveries, 8 per cent, furnace	47.50
Ohio Silveries, 8%, Chicago	51.30
Tennessee Silveries, 8%, Chicago	52.50
Low phos. standard, Phila.	57.00
Low phos. Lebanon, furnace	51.00 to 53.00
Low phos. standard, Pittsburgh	54.40
Charcoal, Superior, Chicago	38.70 to 39.00
Charcoal, Superior, Buffalo	38.50
Charcoal, southern to 2 per cent silicon, furnace	51.00

COKE

(At the ovens)

Connellsville furnace	$6.00
Connellsville foundry	7.00
Pocahontas furnace	8.00
Pocahontas foundry	8.00
New River foundry	8.00
New River furnace	8.00
Wise county furnace	7.25
Wise county foundry	8.25

FERROALLOYS

Ferromanganese, 70 per cent delivered	250.00
Spiegel, 16 per cent fur., spot	75.00
Spiegel, contracts, furnace	75.00
Ferrocarbon, titanium, carloads, maker's plant	200.00
Ferrosilicon, 50 per cent, spot and contract, delivered	150.00 to 160.00
Bessemer ferrosilicon, 10 per cent	57.00
Bessemer ferrosilicon, 11 per cent	60.30
Bessemer ferrosilicon, 12 per cent	63.60

Ferrosilicon prices at Ashland, Ky., Jackson and New Straitsville, O.

SEMIFINISHED MATERIAL

BILLETS AND BLOOMS

Open-hearth, Pittsburgh	$47.50
Open-hearth, Philadelphia	51.30
Open-hearth, Youngstown	47.50
Bessemer, Pittsburgh	47.50
Bessemer, Youngstown	47.50
Forging, Pittsburgh	60.00
Forging, Philadelphia	63.80

SHEET BARS

Open-hearth, Pittsburgh	$51.00
Open-hearth Youngstown	51.00
Bessemer, Pittsburgh	51.00
Bessemer, Youngstown	51.00

SLABS

Pittsburgh and Youngstown	$50.00

WIRE RODS AND SKELP

Wire rods, Pittsburgh	$57.50
Grooved skelp, Pittsburgh	2.90c
Sheared skelp, Pittsburgh	3.25c

SHAPES, PLATES AND BARS

(In cents per pound)

Structural shapes, Pitts.	3.00c
Structural shapes, Phila.	3.23c
Structural shapes, N. Y.	3.245c
Structural shapes, Chgo.	3.27c
Tank plates, Chicago	3.52c
Tank plates, Pittsburgh	3.25c
Tank plates, Philadelphia	3.48c
Tank plates, New York	3.495c
Bars, soft steel, Pittsburgh	2.90c
Bars, soft steel, Chicago	3.17c
Bars, soft steel, New York	3.145c
Bars, soft steel, Phila.	3.13c
Bar iron, common, Phila.	3.73c
Bar iron, common, Chicago	3.50c
Bar iron, refined, Chicago	5.00c
Bar iron, common, Cleveland	3.67c
Bar iron, common, New York	3.745c
Bar iron, common, Pittsburgh	3.50c
Bar iron, refined, Pittsburgh	5.00c
Hard steel bars, Chicago	3.00c

RAILS, TRACK MATERIAL

Angle bars, Pittsburgh base	3.25c
Angle bars, Chicago base	3.25c
Standard bessemer rails, mill	$55.00
Stand. open-hearth rails, mill	57.00
Light rails, 25 to 45, mill	3.00c
Relaying rails, light, St. L.	60.00 to 67.00
Spikes, railroad, Pitts.	3.90c
Track bolts, Pittsburgh	4.90c
Track bolts, Chicago	5.115c
Tie plates, Chicago	3.25c

WIRE PRODUCTS

(Per 100 lbs. to jobbers; retailers 5c more)

Wire nails, Pittsburgh	$3.50
Coated nails, Pittsburgh	3.45
Plain wire, Pittsburgh	3.25
Galvanized wire, Pittsburgh	3.95
Polished staples, Pittsburgh	3.65
Galvanized staples, Pittsburgh	4.35
Barb wire, painted, Pitts.	3.65
Barb wire, galvanized, Pitts.	4.35
Cut nails, Pittsburgh	5.00

CHAIN, PILING, STRIP STEEL

(In cents per pound)

Chain, 1 in. proof coil, Pitts.	7.50c
Sheet piling, base, Pitts.	4.00c to 5.00c

Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100 inch and heavier, base per 100 pounds, 6.50c.

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SHEETS

(In cents per pound)

SHEET MILL BLACK

No. 28, open-hearth, Pitts.	5.00c
No. 28, bessemer, Pitts.	5.00c
No. 28, open-hearth, Chi.	5.27c

TIN MILL BLACK

No. 28, open-hearth, Pitts.	5.00c
No. 28, bessemer, Pitts.	5.00c

GALVANIZED

No. 28, open-hearth, Pitts.	6.25c
No. 28, bessemer, Pitts.	6.25c
No. 28, open-hearth, Chi.	6.52c

BLUE ANNEALED

No. 10, open-hearth, Pitts.	4.25c
No. 10, bessemer, Pitts.	4.25c
No. 10, open-hearth, Chi.	4.52c
No. 10, open-hearth, Phila.	4.48c

TIN PLATE

(Per 100 lb. box)

Tin plate, coke base, Pitts.	$7.75

IRON AND STEEL PIPE

Base Pittsburgh

Base, Pittsburgh	Black Per cent off	Galv. Per cent off
⅜ to 3 in., butt, steel	51	37½
¾ to 3 in., butt, iron	33	17

BOILER TUBES

Steel, 3½ to 4½ inches, l. c. l.	30
Iron, 3½ to 4½ inches, c. l.	12½

CAST IRON WATER PIPE

Without War Freight Tax

(Class B Pipe)

Class A pipe is $1 higher than Class B.

Four-inch, Chicago	69.80
Six-inch and over, Chicago	66.80
Four-inch, New York	70.70
Six-inch and over, N. Y.	67.70
Four-inch, Birmingham	63.00
Six-inch and over, Birmingham	60.00

HOOPS, BANDS, SHAFTING

Hoops, Pittsburgh	3.50c
Bands, Pittsburgh	3.50c
Hot rolled strip steel, Pitts.	3.50c
Hot rolled strip steel, Pitts. stamping quality	4.00c
Shafting, Pitts., carloads	17 off to list
Cotton ties, Nov., per bundle	$1.97

RIVETS

Structural rivets, Pittsburgh	4.40c
Boiler rivets, Pittsburgh	4.50c
Rivets 7/16 in. and small., Pitts.	50 and 10 off

NUTS AND BOLTS

(Prices f. o. b. Pittsburgh)

CARRIAGE BOLTS

(¾ x 6 inches, smaller and shorter)

Rolled thread	50-5 off
Cut thread	40-10-5 off
Larger and longer	40 off

MACHINE BOLTS

(¾ x 4 inches, hot pressed nuts)

Rolled thread	50-10-5 off
Cut thread	50-5 off
Larger and longer	40-10 off
Cold pressed semifinished hexagon nuts ⅝ in. and larger	60-10-10 off
Cold pressed semifinished hexagon nuts ⅝ in. and smaller	70-5 off
Gimlet and cone point lag screws	50-10 off

NUTS

Hot pressed, square blank	2.50c off
Hot pressed, square tapped	2.30c off
Hot pressed, hexagon blank	2.30c off
Hot pressed, hexagon tapped	2.10c off
Cold pressed, square blank	2.25c off
Cold pressed, square tapped	2.00c off
Cold pressed, hexagon blank	2.25c off
Cold pressed, hexagon tapped	2.00c off

Prices Present and Past

(Yesterday, a month ago, three months ago and a year ago)

Quotation on leading products November 6, average for October, 1918, average for August, 1918, and average for November, 1917. Prices are those ruling in the largest percentage of sales at the dates named.

	Prices Nov. 6, 1918	Average prices Oct. 1918	Aug. 1918	Nov. 1917
Bessemer, valley del., Pittsburgh	$36.60	$36.60	$36.60	$37.25
Basic, valley del., Pittsburgh	34.40	34.40	33.40	33.95
*No. 2 Foundry, Pittsburgh	35.40	35.40	34.40	33.95
*No. 2 Foundry, Chicago, furnace	34.00	34.00	33.00	33.00
Lake Superior charcoal, Chicago	38.70	38.70	37.70	37.50
Malleable, valley	34.50	35.90	34.90	*1.45
Malleable, Chicago	34.50	34.50	35.40	3.37
**Southern, No. 2, Birmingham	35.25	35.25	33.50	33.50
*Southern Ohio No. 2, Ironton	34.00	34.00	33.00	33.00
Basic, eastern del., eastern Pa.	36.90	36.60	32.00	33.00
**No. 2X Virginia, furnace	38.00	37.50	33.50	33.50
**No. 2X, eastern del., Philadelphia	39.15	38.85	34.50	34.00
Ferromanganese, 70%, delivered	250.00	250.00	250.00	247.00
Bessemer billets, Pittsburgh	47.50	47.50	47.50	47.50
Bessemer sheet bars, Pittsburgh	51.00	51.00	51.00	51.00
Open-hearth sheet bars, Pittsburgh	51.00	51.00	51.00	51.00
Open-hearth billets, Pittsburgh	47.50	47.50	47.50	47.50
Steel bars, Pittsburgh	2.90	2.90	2.90	2.90
Steel bars, Chicago	3.17	3.17	3.17	2.90
Iron bars, Philadelphia	3.73	3.73	3.73	4.33

*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.

	Prices Nov. 6, 1918	Average prices Oct. 1918	Aug. 1918	Nov. 1917
Iron bars, Cleveland	$ 3.64	3.64	3.64	3.64
Iron bars, Chicago mill	3.50	3.50	3.50	4.10
Beams, Chicago	3.27	3.27	3.27	3.00
Beams, Pittsburgh	3.00	3.00	3.00	3.00
Beams, Philadelphia	3.23	3.23	3.23	3.18
Tank plates, Pittsburgh	3.25	3.25	3.25	3.25
Tank plates, Chicago	3.52	3.52	3.52	3.25
Tank plates, Philadelphia	3.48	3.48	3.48	3.43
Sheets, blk., No. 28, Pittsburgh	5.00	5.00	5.00	5.30
Sheets, blue anld., No. 10, Pittsburgh	4.25	4.25	4.25	4.60
Sheets, galv., No. 28, Pittsburgh	6.25	6.25	6.25	6.50
Wire nails, Pittsburgh	3.50	3.50	3.50	3.50
Connellsville furnace coke	6.00	6.00	6.00	6.00
Connellsville foundry coke	7.00	7.00	7.00	6.60
Heavy melting steel, Pittsburgh	29.00	29.00	29.00	29.00
Heavy melting steel, eastern Pa.	28.50	28.50	28.50	27.50
Heavy melting steel, Chicago	29.00	29.00	29.00	28.50
No. 1 wrought, eastern Pa.	34.00	34.00	34.00	35.70
No. 1 wrought, Chicago	33.50	33.50	33.50	34.35
Rerolling rails, Chicago	34.00	34.00	34.00	35.70

(FOR ADDITIONAL PRICES SEE PAGE 1098)

British Want Colossal Iron Tonnage

Urge Government to Supply 750,000 Tons of Basic for First Half—Impossible for Furnaces to Furnish Iron Without Adjustment of Steel Orders—Peace Outlook Becomes Growing Market Factor

New York, Nov. 5.—Representing unquestionably the largest single inquiry for pig iron ever placed before American producers, the British government has entered the market for 750,000 tons of basic iron for war requirements. This inquiry has been put out through the United States government which is acting in behalf of the allies in obtaining iron and steel supplies. The iron is wanted for delivery over the first half of 1919. The tonnage is so vast that it is a serious question whether the country will be able to spare it without a corresponding adjustment of the quantity of steel which the British government has under order with the American mills. The iron now sought is to cover the future extension of the demand of the British government which for this year is being satisfied by shipments against the 180,000 tons of basic placed with American furnaces several months ago. Interest in the market here continues to be centered more intensely on developments in the peace situation. Producers are grateful for the fact that stocks at consumers' plants are very low, and hence under any conditions there will have to be a continuance of shipments to the plants. It is thought, however, that when peace comes, numerous cancellations of contracts for war materials will start to develop without delay so that the demand for tonnage speedily will become less than the supply instead of there being a greater supply as at present. For this reason a subject of considerable interest is the policy with regard to prices which will be followed by pig iron producers. In some quarters it is felt that it will not be long after the acceptance of the allied terms by Germany before some of the producers will begin to discount the future. Consequently, it is not believed improbable that if Germany also ceases to be a belligerent that the market will reflect quotations here and there which are below the government price. Business in this district during the past week has been of good volume. It involved numerous sales of foundry for first half delivery and numerous allocations for delivery both over the remainder of this year and for the first half of 1919. Some furnaces have sold large tonnages for first half and it is known that in some cases they have more business on their books for this period than they can possibly produce during the six months. An interesting angle of current opinion is the belief held by numerous sellers in the metropolitan district that the termination of hostilities and the release of vessel tonnage will result in the sale of considerable pig iron to South America. South American consumers have been unable, since the United States became a belligerent to get the tonnage they require and it is believed that considerable unfilled demand has accumulated and will be filled at the end of the week.

Much Uncertainty Exists

Pittsburgh, Nov. 5.—With peace apparently at hand, much uncertainty exists in the iron trade here and every bit of information that might prove a possible guide to after the war conditions eagerly is grasped. There is especial interest in the probable course of the government in the matter of control of supplies, distribution and prices and there is much discussion of this phase of the situation. But discussions of this sort at best are futile and lead nowhere. Although there has been no official word stopping the production of munitions and direct war needs, it is a fact that there is a distinct lowering of the energy of the workmen at the plants. And moving along up the lines, although the operating departments of the steel plants are trying to keep up activity at the recent scale, the task is proving hard. Caution seems to be developing among users of iron for the conclusion is strong that the war is about over and that there seems to be less urgency about going ahead on production. Few inquiries at any rate have been coming to the blast furnace

interests lately and allocations have not been numerous. Users of low phosphorus iron recently asked to have iron of this grade allocated to them and round tonnages are being distributed. Production of iron has not been holding up particularly well. Coke for one thing is not moving to the stacks in normal fashion yet and there continues to be some limitation of activities through the loss of men from sickness.

Consumers Less Anxious

Philadelphia, Nov. 5.—Consumers of pig iron are not so anxious to buy pig iron for forward delivery as they were a short time ago. This, it is believed, is due to the expectations they are entertaining as to an early termination of the war. Activity in the local market has continued more marked the past week. There has been more booking of first half delivery wants by both Alabama and eastern Pennsylvania furnaces. None of this business has been of an anxious character since the furnaces are taking on mainly regular customers here and there. There also has been some limited selling of this year's foundry iron. Allocations of the week included a good many lots of foundry iron mostly for delivery in the first half and also several round tonnages of low phosphorus.

Not Interested in Peace Talk

Buffalo, Nov. 5.—Furnace men say the supply of coke is coming in better than last week, although leaving much to be desired. One interest which manufactures its own fuel complains of a coal shortage. Another furnace which had to bank is again in operation and the district is now working at 100 per cent of capacity. Allocations were more numerous the past week than in the week previous. The size of individual allotments was not so large. Talk of an early peace is not causing a ripple in the local situation, the government apparently seeking an increase in production rather than a decrease. It is assumed the government will not cancel contracts without compensation. One furnace man says he understands that the government will pay for all raw materials pruchased. Another furnace man who has indirect government contracts, claims his contracts cannot be cancelled. The industry is not paying much attention to the peace talk. A Tonawanda furnace formerly on foundry will go into ferromanganese Wednesday.

No Letdown of Demand

Cleveland, Nov. 5.—Not the slightest evidence of any letting down of government activities is shown by the war demands for pig iron. Tremendous inquiries for iron from the allies also are current and are being satisfied. Of the 100,000 tons of various grades inquired for by Italy, 20,000 tons of bessemer and 4500 tons of malleable for this year have been procured. This leaves 44,000 tons of bessemer and 36,000 tons of foundry still to be obtained. France has inquired for 26,000 tons of bessemer for November-January delivery. Allocations of the week were among the heaviest of any similar period yet reported, totaling 141,000 tons. This included 71,000 tons of low phosphorus, of which 65,000 tons is for next year; 40,500 tons of foundry, of which 26,000 tons is for next year; 2000 tons of basic all for next year; 3700 tons of charcoal, of which 2600 tons is for next year; and 3900 tons of malleable for next year. Total allocations up to May 1 reached 1,619,000 tons. Merchant furnaces have become so filled with basic and other steelmaking grades that the pig iron administration is calling upon steel works more generally to help out with tonnage. Several fair sized lots of both bessemer and basic have been drawn from the stocks or surplus iron of these companies. A recent inquiry for 12,000 tons of basic from an eastern consumer has been satisfied. Peace developments have had little effect on the pig iron market in this district. Consumers have been depending more and more upon allocations for their needs and have been doing so little in the way of open trading of late that any influences of present conditions may not be readily traced.

Inquiry Is Stimulated

Chicago, Nov. 5.—Instead of a slowing-up in interest in the pig iron market, as might have been expected in the face of war developments in the direction of peace, inquiry seems to be stimulated and melters are asking for iron, both for first half of 1919 and the remainder of this year. In the face of a somewhat greater willingness on the part of makers to book for next year buyers are displaying bearish sentiment and seem to expect that prices will be lower soon and seek to obtain better contracts than the government maximum price. The greater inclination of furnaces to sell is taken as an admission of weakness in expectation of the future. Peace talk has not had the effect of reducing business and today allocations were

War Market Price Manual Ready

IRON TRADE REVIEW Offers Third Edition of Price Booklet

THE third revised edition of THE IRON TRADE REVIEW *booklet on base prices, differentials and extras on iron, steel and nonferrous products fixed under government supervision now is ready for distribution. The entire second edition of the booklet issued July 1, long since has been exhausted.*

The new booklet is the largest and most complete volume of its kind that yet has been issued. It not only contains all the base prices fixed direct by the President and through the recommendation of the American Iron and Steel institute, together with the qualifying differentials, extras, conditions and footnotes as revised and amended up to Nov. 1, but it embraces the chronology of price making; all important price and regulatory announcements; the roster of government price authorities, of the war industries board, and of the numerous war service committees acting in behalf of various industries; the preference list of industries now in effect; curves of comparative prices; freight rates on iron and steel products and many other original features.

IT is in fact a history and manual of price regulation combined. The value of the booklet may be measured not only by its present application to all transactions in iron and steel and nonferrous products since it is the only complete price guide now offered before the industry but by its character as a permanent record of war market regulation and conditions. It will prove to be of great worth in the interesting days which apparently lie before the industry.

More important changes in the various price schedules were made subsequent to July 1 when the second edition of THE IRON TRADE REVIEW *booklet was issued and particularly around Oct. 1, than at any previous period since the government assumed control of the market. In the third edition all these schedules are brought strictly up to date.*

THE booklet contains 128 good-sized pages, legibly printed on high grade glazed stock and is bound in an attractive and durable cover. All price lists are arranged and grouped according to product preserving the system which had proved so popular in previous issues. The contents are indexed and cross indexed in a way to permit the quickest and easiest reference.

The new price manual is offered to the trade at the usual nominal price of $1 per copy. Only a limited edition has been published.

received by the leading producer here, one being for 1000 tons. No indication of weakening in demand is visible here. An important southern producer has authorized representatives to entertain proposals for first half delivery on which it will contract a limited tonnage, subject to prior sale. Some high-sulphur iron is being offered as the result of poor fuel and all except the extreme sulphur casts are finding ready sale to melters who have sufficient silicon in other irons to carry the load.

No large inquiries are apparent and business for the most part is of smaller melters seeking to cover part of their requirements for next year. The market is in much suspense, with most observers believing the market will be supported by the government.

Keeping Up War Pace

St. Louis, Nov. 2.—There is little change in the pig iron situation in this district. Producers and selling agencies have little to sell and are busying themselves with government allocations and prompt shipments. A few sales to commercial users, mainly of foundry iron, were negotiated this week for delivery during the first half of 1919. The transactions were made with a provision protecting sellers should they be unable to deliver because of government intervention.

The reported decrease in production in the east and north has not affected deliveries in this region. War plants are getting material regularly and few complaints are heard. One east side plant working on shipbuilding material has increased its November and December demands by 1500 tons, which probably will be supplied. The leading stamping mill interest has contracted for a large tonnage to be shipped between Jan. 1 and March 1, 1919.

The situation as regards nonessential users also remains stationary. A few cars arrive occasionally on old contracts, and a large part of the off iron recently sold by a Birmingham maker has found its way to the buyers. Nothing is being sold, however, except with governmental sanction, and so far as can be learned war requirements will take up 100 per cent of production for an indefinite period. Peace developments have resulted in feverish activity among commercial melters who are preparing orders in the hope of having them filled soon.

South Still Short of Material

Birmingham, Ala., Nov. 5.—Pig iron production in Alabama is not improving to any great extent, the shortage of raw material being felt throughout the district. Ore, coal, coke, limestone and dolomite are lagging, and in some instances the quality of ore and coke is a disturbing element. The Talladega furnace, owned and operated by Japanese interests, has had to bank fires, lacking raw material, after shipping 20,000 tons of foundry iron to Japan. Four other furnaces ready for operation are still waiting for raw material. With the exception of about 55,000 tons of basic and foundry irons in yards of the Tennessee Coal, Iron & Railroad Co., at Ensley and Bessemer, there is not much iron in furnace yards in this district.

Rail Congestion Lingers

Coke Supplies Still Laggard and Furnaces Are Affected--Men Returning to Work—Buyers Show Confidence

Pittsburgh, Nov. 5.—Although the railroad situation is better than it was a short time ago, there still is considerable congestion at junction points and few of the blast furnaces are getting normal supplies. The railroads were especially hard hit by the influenza epidemic and in spite of strenuous efforts to provide crews for the placing of cars, only a measure of success has attended these efforts. It is reported, however, that more men are coming back to work every day and as the car supply is good, it is believed that in a short time, barring of course unfavorable weather conditions, the movement of fuel will show marked improvement. The epidemic also seems to be subsiding in the coke regions and with an improvement in the labor situation through the return to work of men who have been out sick, production of coke, which has been tapering off steadily of late, is expected soon to be better. Coke production in the Connellsville region for the week ended Oct. 26, was 302,394 tons, as compared with 314,045 tons in the previous week, according to *The Connellsville Courier*.

Optimistic of the Future

St. Louis, Nov. 2.—The chief feature of the coke situation here is the confidence of melters in the future. None, so far as can be learned, has shown hesitation in contracting for first half of 1919 supplies at present government figures, and a large majority would willingly take heavier tonnages than they have closed for. The selling agencies and producers, however, are contracting for next year only on the basis of actual consumption for the corresponding period this season. Despite the fact that the government maximum, $7 at ovens for foundry coke, is extremely high as contrasted with normal prices in the past, users are willingly covering their future needs on that basis. They take the view that latent peace needs will be sufficiently large to keep their plants working at capacity for at least six months after peace terms have been signed. Another factor in the ready acceptance of present prices is that the cost of labor, transportation, raw materials and other elements entering into the manufacture and distribution of coke have so advanced that it will be years before the return to the old basis, if at all. Shipments during the past week have been fair, although under the average. Transportation, mine and oven disabilities, due to influenza, have affected deliveries to some extent, but not to such an extent as at other important centers. The war industries are getting ample coke for current needs, but no accumulation is noted for the reason that supplies do not permit of it, and because many of the war plants have not the space or facilities for staking. Production by the local by-products plants, especially the leading interest, continues heavy. Everything made, however, has been sold and not a ton of coke could be purchased for quick delivery in the open market here.

Production Is Increased

Birmingham, Ala., Nov. 5.—Coal and coke production in Alabama is on the increase, the influenza epidemic having subsided, and labor returning. In the week ending Oct. 26 the coal production in Alabama dropped to 310,041 tons, the lowest output in years. Coke production also dropped considerably during the epidemic. A. H. Carpenter, district coke production manager for the fuel administration, is organizing committees to study conditions with a view to increasing production. Efforts are also being made to get cleaner coke.

Add Iron and Steel Scrap Section to War Board

Washington, Nov. 5.—A section devoted to scrap iron and steel was established in the offices of the steel division of the war industries board yesterday. W. Vernon Phillips, chairman of the subcommittee on scrap, of the American Iron and Steel institute, is chief of the new section and Richard Peters Jr., of the Philadelphia office of Rogers, Brown & Co., is his assistant.

An announcement made in this connection says:

"The subcommittee on scrap iron and steel of the American Iron and Steel institute is continuing its functions in the practical carrying out of the plans of the war industries board with the added authority given to it through the chief of the iron and steel scrap section. Its personnel remains the same and no changes are at present contemplated in its method of operation except by an enlargement of the force working under the chairman and secretary at Philadelphia, and the establishment of a regional organization which will cover the entire country, not only for the purpose of practical reclamation, but to intensify and encourage the operation of scrap yards and the rapid movement of material from the industrial plants, public utilities, etc., to the consumer or scrap yards."

The new scrap section temporarily will be located at 807 war industries board building, Washington, where Mr. Phillips will spend all the time except Mondays and Saturdays. The co-ordinating members of this section are George F. Yeomans of the Central advisory purchasing committee of the railroad administration; Maj. W. M. MacCleary, of the procurement division of the war department, who will act for the army; Lieut. Commander S. R. Fuller, bureau of supplies and accounts of the navy department, who will act for the navy department; and H. F. Grimes of the Emergency Fleet corporation.

Scrap Prices Grow Weaker

Irregularity More Pronounced in All Districts Under Armistice Developments—Committee Reiterates Claim Supply is Ample

FOR COMPLETE SCRAP PRICES SEE PAGE 1098

Chicago, Nov. 5.—As a consequence of increased peace talk, the market for iron and steel scrap is decidedly softer. This does not apply to grades used in the open hearth, as mills continue in great need of raw material. However, consumers of foundry grades and rolling mill scrap have left the market and are no longer inquiring, with the result that prices are sympathetically slightly weaker. There does not appear to have been any increase in the quantity of scrap available but the lessened demand has had the effect of weakening prices. The Chicago & Northwestern is offering 2500 tons, the Santa Fe 1200 tons, the Chicago Great Western 500 tons and the Nickel Plate 360 tons.

Switching Ban Slows Delivery

Buffalo, Nov. 5.—Buffalo dealers are hard hit by an order issued by the railroad administration, effective Nov. 1, which prohibits the switching of scrap from local yards to local consumers. The order was issued because of scarcity of cars. The only other method of transferring scrap is by truck and there are not enough trucks. The order has delayed delivery of several thousand tons of scrap. Many of the contracts are urgent, and consumers have been insisting on even quicker delivery than ordinarily. Efforts are being made to obtain a modification of the order. It has already resulted in a temporary weakening of the market because consumers hesitate to contract.

Market Shows Softness

Cleveland, Nov. 5.—A northern Ohio melter has refused an offer of several thousand tons of heavy melting steel at the government maximum of $29, plus commission. A large tonnage of scrap bought against the manufacture of semisteel shells has been sold because of the slowing down in shell orders. With the exception only of heavy melting steel—which incidentally is none too firm—scrap iron and steel grades here generally are weaker. Rolling mill and foundry scrap seem to be losing ground the fastest. The trend now is distinctly downward, dealers say, and the market will see much lower prices before it sees a recovery, they believe. Supplies of low phosphorus are much smaller. Most dealers are reported in the market for steel, although the demand is not so pressing any more. Consumers do not want to come into peace time with war scrap bought at war prices on their hands; they are exhibiting the tendency of getting their stockpiles down to rock bottom.

See Prices Fall as Peace Nears

St. Louis, Nov. 2.—The market for scrap iron and steel here is quiet but irregular. Peace talk continues a potent factor in forming sentiment. Smaller dealers and collectors believe peace will bring a radical adjustment downward in prices and are governing themselves accordingly. Important consumers are developing an indifference relative to future supplies. They are buying readily enough for current needs, but have drifted out of the future market to a noticeable degree. Even for immediate delivery they are seeking concessions, and except on steel, which is scarce, are unwilling to pay any more commissions. A canvass of leading consumers of scrap in the immediate district this week on the question of the probable effect of peace revealed only one dissenter from the view that it would result in lower prices. While it is admitted great quantities of steel and iron going abroad and into ships will be years in reaching the scrap heap, it is pointed out that this loss will be more than offset by reduced consumption when war work halts, and, besides, enormous instrumentalities now active in essential production will be junked when their usefulness has passed. Railroads, which in recent months have been indifferent sellers, will with the first letdown in the rush of traffic, become a great source of supply. Certain grades of scrap are plentiful in the local market, which is close to the point where it can be shipped with profit. Agricultural malleable is a drug on the market, there being a plentiful store, which no one seems to want. The same is true in a less degree of stove plate. All grades of steel are in stiff demand and commanding the recent strong prices, plus commission. Rolling mill grades are easier in tone. The embargo against the leading foundry interest continues, and is not likely to be lifted so long as the Spanish influenza prevails. The labor shortage has been made more pronounced by the enidemic and this interest has been unable to obtain help to unload an accumulation of cars at its plants on either side of the Mississippi river.

Market Is Uncertain

Pittsburgh, Nov. 5.—Continued uncertainty is observed in the scrap market here owing to the apparent proximity of peace. Although consumers only in a few instances are stocked against the usual winter shortages, they show considerable indifference about taking on additional tonnages. Dealers also show some lack of confidence in the future of the market and are turning over as promptly as possible those tonnages that come into their hands. Under the circumstances, although there has been no decline in prices, it must be said that full quotations are not as readily obtained as was recently the case. Deliveries on standing orders are absorbing the great bulk of receipts and there are no burdensome accumulations anywhere. The Pennsylvania railroad will today make awards on a considerable tonnage of shop and yard scrap for which bids were asked about a week ago.

Prices Show Weakness

Birmingham, Ala., Nov. 5.—Talk of peace has affected the scrap iron and steel market in the Birmingham district and softness in quotations is noted. While there is no let up in the delivery of old material, consumers are holding off from the market. Dealers say some prices have weakened to such an extent that it is advisable to await developments rather than take on new business. The principal old material grades in this district, heavy melting steel, No. 1 railroad wrought, and No. 1 cast sold off during the past week. Old material men say that when peace is announced normal conditions cannot be looked for within six months thereafter.

Easier Tone Develops

New York, Nov. 4.—A distinctly easier tone is in evidence in the New York scrap market, as a result of present developments in the international situation. This has not as yet resulted in the shading of prices, but such a development is considered likely in the near future, and the trade, consequently, is moving cautiously. One class of material to be affected by the uncertainty at this time is low phos scrap, for which demand has fallen off considerably. Other grades, however, particularly cast scrap and heavy melting steel, continue in fairly good demand. Permits again are being issued for the shipment of material to Lebanon, Pa., the congestion at that point now clearing away. These permits, however, still are difficult to obtain.

Foresees Enough Tonnage

Philadelphia, Nov. 5.—Despite the criticisms which have been made of its statement that there will be enough scrap to go around through the winter, the subcommittee on iron and stel scrap reiterates this belief. The only grade of which it is not sure in this respect, is cast. Since numerous blast furnaces have switched from foundry to basic iron with consequent greater consumption of cast scrap, the committee is not sure whether the supply of the latter grade will prove sufficient. The committee says that scrap generally is easier to buy and hence it is not necessary to grant so many purchasing permits as before. The report from St. Louis that changes are being made in the cast iron schedule are being denied. The cast schedule remains as before and the selling price of agricultural cast is determined by it the same as before.

Some Cancellations

Made By Jobbers In Sheets—Valley Maker Offers To Sell

Youngstown, O., Nov. 6.—Indications of an early peace has led a few jobbers to cancel their orders for sheets among valley mills. The orders have been on the books for many weeks. Another interesting phase

which has become noticeable this week is that the majority of buyers inquiring for sheets in this district ask for a 30-day delivery or as near to this as possible. While inquiries of this nature are not of a large volume makers expect them to increase soon. The largest valley maker now is offering to entertain inquiries and take orders at present prices for indefinite delivery. No protection against price decline is given. Makers continue cramped with business.

Some makers are of the opinion that the government should continue the priority system for at least three months after the cessation of hostilities.

No large government orders for sheets have come out this week. Most of the French order for blue annealed which was referred to in the Oct. 31 issue of THE IRON TRADE REVIEW has been placed among mills outside this district, only one maker here being in a position to take on any part of it. Sheet bars continue to be scarce. The output is such as to keep sheet mills throughout this district operating on a 70 per cent basis. Some mills attain this rate while others are far below.

Government Demands Heavy

Pittsburgh, Nov. 5.—In direct contradiction to the notion that the apparent proximity of peace is slowing down war demands, it is stated that the government still is placing orders for sheets and asking prompt delivery. No cancellations are reported; on the contrary, the government is pressing for delivery of what it has ordered and makers report considerable difficulty in keeping abreast of such demands, because the supply of bars still is limited to an extent that does not permit of mill operations much in excess of 50 per cent of capacity. In addition to the shortage of steel, the labor supply has been reduced by the influenza and the fact that not a few men have gone into other lines of industry where chances for bigger pay are better. A government inquiry for a sizable tonnage of galvanized sheets has been seeking manufacturers for several days, but the placing of it has been difficult owing to the help situation, the influenza having hit the pickling departments of the various mills especially hard.

Sheet Mills Slow

Chicago, Nov. 5.—Sheet mills continue to operate at about 60 per cent capacity, this being as much as they are able to keep busy with the steel at their command. From time to time mills are taken out of service as sheet bars are scarce. Demand continues heavy for sheets, but as much of the demand is accompanied by B priorities, it is difficult to place them. Warehouses are not receiving as much as they desire except on replacement of material sold for high priorities.

The Japanese government has been advised that four hulls transferred to the United States shipping board under the recent ship agreement have proved unseaworthy. It has been stated officially that replacement of the ships has been promised.

Navy Revives Armor Plant

About to Ask Bids on 20,000 Tons for Charleston—Shops Lose Tonnage for Alameda—Chicago Takes Bridge Bids

New York, Nov. 4.—Information in the hands of a structural fabricator indicates that the navy department shortly will take bids on at least 20,000 tons of structural steel and probably a good deal more to be used in the construction of the proposed armor plate plant at Charleston, W. Va. It is believed that the navy department definitely has decided to begin the erection of the plant. It is not known, however, whether a decision yet has been reached as to the definite purpose for which the plant would be used when it is completed. A few weeks ago it was expected that the plant would be used originally for producing guns and shells instead of for armor plate as at first projected. With the end of the war apparently in sight, however, it is believed that the plant will be laid out at once for the manufacture of armor plate. The only large new job of any importance which has come up in the structural field is an electrical and machine shop for the Brooklyn navy yard. This is expected to require about 3000 tons.

As a result of the recent ruling of the priorities committee, no more stock orders for plain shapes are being received from any buyers. Under this ruling, orders can be placed only for tonnages to be used for specific jobs, and in each case the priority rate will depend on the purpose for which the steel is to be used. No orders yet have been placed under the new ruling, however, which went into effect only a few days ago. Very little business in fact has characterized the market for sometime.

Fabricators Lose Business

Pittsburgh, Nov. 5.—Some of the steel fabricating interests here have lost some business in structural shapes through the cancellation of the building of the Alameda, Cal., shipbuilding plant, and other government construction which was partially under way. Fabricated material for Emergency Fleet continues to engage much capacity but the trade is pretty much unsettled and disturbed as to a possible outlet for the structural tonnages that have been released, especially as it will probably be some time before permission will be granted for the resumption of private construction.

Structural Demand Low

Chicago, Nov. 5.—Under strong restrictions of the war industries board which prevent any but the most essential construction work, demand for structurals is reduced to the lowest possible point that steel may be available for more necessary purposes. The city of Chicago is asking bids again on the entire Michigan boulevard bridge project, involving about 8000 tons. This is the third time figures have been asked on this improvement and it is not certain whether its essential nature has been determined.

CONTRACTS AWARDED

Extension to furnace building and new crane runway for Mark Mfg. Co., Chicago, 200 tons to Worden-Allen Co.

Coal tipple at Jefferson, Pa., for Pickands, Mather, 100 tons to the Lackawanna Bridge Co.

CONTRACTS PENDING

Buildings for navy department at Yorktown, Va., 250 tons, bids being taken.

Electrical and machine shop for Brooklyn navy yard, approximately 3000 tons, bids being taken.

Michigan boulevard bridge for City of Chicago, 8000 tons, bids being taken.

Ore Shipments

In October Insure Furnace Having Sufficient Stocks

Ore carriers on the Great Lakes continue their record of transporting heavy tonnages of ore by bringing down 8,541,593 gross tons in October. This total exceeds the October, 1917, figure by 347,701 tons and makes the grand total shipments to the first of November, 56,870,871 gross tons. The increase in shipments from the Lake Superior district so far this year over the corresponding period in 1917 is 2,617,273 gross tons.

Full supplies of iron ore are practically assured to all consuming furnace interests, since less than a normal movement during November will supply all estimated requirements. Close to 5,500,000 tons probably will be transported during November, and the total season's shipments by lake will closely approximate 62,000,000 tons. Congestion at grain unloading ports on the lakes, resulting from inability to secure ocean tonnage, has released a number of ships from the grain trade and aided materially in boosting the ore total. For the first time in a number of years the lake fleet may finish during November.

The ore shipments by ports during October and up to Nov. 1 are as follows:

Port	October	To Nov. 1
Escanaba	1,015,089	6,052,311
Marquette	437,229	3,250,207
Ashland	1,255,176	6,934,371
Superior	1,887,284	13,064,201
Duluth	2,920,070	19,281,792
Two Harbors	1,026,745	8,287,989
Totals	8,541,593	56,870,871

Plate Mill in Operation

The Penn Seaboard Steel Corp., Philadelphia, began to operate its plate mill at the Baldt works, New Castle, Del., the latter part of October. C. H. Williams is manager of the Baldt works, under the supervision of C. E. Middleton, vice president of the Penn Seaboard corporation.

Urge More Shell Output

Ordnance Department Speeds Up Producers of Ammunition—Ohio Maker Seeks Bar Orders—Some Jobbers Cancel

Cleveland, Nov. 5.—Contrasting sharply with some of the rumors of cancellations and of the scaling down of contracts, is the general and urgent call upon manufacturers by the ordnance department dated Oct. 30 to increase production of ammunition. It is pointed out that the recent allied campaign has drawn heavily upon accumulated stocks and that peace and armistice possibilities will be all the more strengthened if manufacturers will speed up production more than ever. An increasing monthly output is asked for. Some cancellations from the jobbing trade have made their appearance in this district and in certain cases these have represented a considerable tonnage. This is the only evidence that peace talk has injected any influence into the situation. Manufacturing consumers are going ahead ordering in their supplies against government contracts and the mill tonnage is up to full capacity. A Mahoning valley maker of bars has started out to actively solicit business in this line. Business is being sought on the basis of present prices but no protection or adjustment is being allowed in the event of subsequent changes of the market.

Government Continues Buying

Chicago, Nov. 5.—No let-up has become evident in allocations of steel by the government and all mills continue to receive tonnage in about the same volume as formerly. Mills are keeping up their production at the highest possible point and the October production is one of the heaviest this year, although it is not yet apparent that previous records were broken. Although there has been expectation that government demands would be lessened as the result of peace negotiations, this has not yet become apparent.

Though a change has been made in bar iron prices to provide for two grades of refined bars making the prices 4.25c and 5c, respectively, business continues slow and consumers are taking only what they need for actual work, refraining from making long-time contracts. Mills find sufficient tonnage on their books to cover operations for several weeks, but are not in an easy position for future production.

Somewhat freer offering of rerolling rails during the past week has been noted, apparently some rails which have been hoarded or neglected now being put on the market. This supply is not adequate to the needs of rerolling mills, but has put them in position where they are willing to book a little more freely than has been the case recently. Demand for bars rerolled from rails is sufficient to take all output resulting from this larger supply of raw material.

Output Still Limited

Pittsburgh, Nov. 5.—Operations of the merchant steel bar mills still are running at a low rate owing to the scarcity of steel for this purpose. It is figured that with the readjustment peace will bring, that the supply of steel for bars will be restored, or that limitations will be lifted, but as yet there have been no cancellations of orders going into government work. While there is a tendency to slow down in practically all directions as a result of the possibility of peace, no official notice of cancellation of munition supplies yet has been issued. Iron bars are in demand, being substituted in a good many places for steel bars.

Meeting Only Essential Needs

Pittsburgh, Nov. 5.—Only enough steel is available for the makers of shafting to permit them to meet high priority orders. A considerable tonnage for orders carrying lower classification are on the books of manufacturers but some doubt exists as to whether or not these orders will hold, especially now as peace seems near and changed conditions may remove many of the needs of the goods ordered. The current rate of operation at the mills is between 50 and 60 per cent of capacity.

Bolt Demand Strong

Chicago, Nov. 5.—Buyers of bolts and nuts continue to seek further tonnage, talk of peace not having modified their requirements. Producers are more inclined to take on further business and to book further into the future than has been their practice through recent weeks.

Orders Still Come Forward

Pittsburgh, Nov. 5.—Makers of nuts, bolts and rivets report no let-up in the orders for direct and indirect government work and report some difficulty in keeping up with such orders, owing to the shortage of steel on the one hand and a loss of production due to sickness of men, on the other.

Hoop Demand Moderates

Pittsburgh, Nov. 5.—The demand for hoops and bands is only moderate and although production is much curtailed because of the smallness of the allotment of steel for this purpose, it is quite ample and makers experience no difficulty in filling orders.

Wire Tonnage Cancelled

British Order for 15,000 Tons Dropped—65,000 Tons Held Up—Makers Solicit Orders in Open Market

Pittsburgh, Nov. 5.—An order for 15,000 tons of military barbed wire which manufacturers recently were ordered to hold themselves in readiness to supply for shipment to Great Britain, has been cancelled and an allotment of 65,000 tons for shipment to Italy has been held up. Makers are much perturbed over this development and are wondering if similar action will not be taken with regard to the remainder of the big foreign allocations, which, it was announced, would soon be officially distributed. Releasing of this tonnage, however, is not without its favorable side for the reason that the distributing trade is almost bare of all kinds of wire products and it is believed that it now will be possible to meet some of these demands which have been urgent and had to go unfilled; owing to the more urgent needs for war purposes. As a matter of fact, some makers whose capacity was not fully engaged by allocations, have already begun to book orders for barbed wire from their regular customers. Orders for nails from the domestic trade cannot be any more than partially filled but it is expected that cancelling of the foreign orders will result in improvement in this direction.

Mills Accepting Inquiries

Cleveland, Nov. 6.—Some indications of the openness of the wire products market have appeared in this district within the past several days. Three important producers of wire products including the leading interest now are accepting inquires from old customers and have booked some small tonnages. These contracts specify delivery at no definite date, or at mills' convenience. The price specified in every instance is the present maximum with no provision for further adjustment of any sort.

Ban Lifted

On Shipments of Tin Plate for Containers and Oil Cans

Pittsburgh, Nov. 5.—Packers will be permitted to put up baked beans in November, December and January to the same extent they did during the same period a year ago and accompanying this official order came one lifting the prohibition against the shipment of tin plate for the containers. Shipments of tin plate against these needs will now go forward and word also has been received by manufacturers that they are now permitted to make shipments against a portion of the oil can requirements. These releases give the makers something to work on and with ample supplies of tin bars available, no trouble is anticipated in maintaining mill operations on a scale of 70 per cent of capacity.

The Worden-Allen Co., Milwaukee, which erected a large new furnace building for the Mark Mfg. Co., Chicago, several months ago, has taken

a new contract to enlarge the structure and build a new craneway. The work involves about 200 tons of structural shapes. The Milwaukee shop also is fabricating approximately 6000 tons for the Emergency Fleet corporation.

Railroad Cars

Going To Military Roads—American Requirements Delayed

Chicago, Nov. 5.—Builders of railroad equipment are concentrating their efforts almost entirely on cars for the military railroad in France and comparatively little work is being done on those for the railroad administration. Mills are furnishing material in keeping with this program as the government is insistent that the military cars be given every preference. Railroads continue to inquire for track fastenings and for other material, which may be used in keeping up their rolling stock and right of way.

Cars Are Wanted

Philadelphia, Nov. 5.—The railroad administration is inquiring for 2000 steel hoppers of 50-tons' capacity each. These are for the Virginian railway.

Hyman-Michaels Co., Peoples Gas building, Chicago, is sending to the trade a table of net and gross equivalents from $1 to $46, handsomely printed on a celluloid card, making it indestructible.

Ship Revision Hits Mills

Emergency Fleet's Concentration on Larger Vessels Upsets Plate Rolling Schedules—Influenza Still Cuts Production

New York, Nov. 5.—Reduction of its construction program by the Emergency Fleet corporation is such that it is probable that certain mills will be unable to deliver during December any tonnage on their present contracts of this character. This affects the plate mills especially and in a less measure the structural shape plants. This readjustment of the requirements of the Emergency Fleet corporation, it is expected, will be so extensive that mill schedules for December will be held up in order to allow operations to conform to these revisions. The shipping board has found that to compete with foreign nations after the war, 12,000 and 15,000-ton vessels are more desirable. Even 7500 and 8000-ton vessels now being built at Hog Island, it is said, are falling considerably below the necessities of the case. While more cancellations of contracts for smaller vessels are expected, to be made wherever possible and the production of the larger sizes will be pushed. Effects of the influenza still remain. Mill operations are running at about 70 to 75 per cent.

Still Running Actively

Pittsburgh, Nov. 5.—No let-up is observed in the activities of the plate mills here, and production, if it is any less than it has been, is due to a loss of men through influenza, rather than because of any official word in Washington curtailing the output. As matters stand, the manufacturers are from two to three months behind their orders and while it is realized that peace will likely mean cancellations in a good many of the finished products, it is believed that the shipbuilding program will not be materially curtailed and that there will be a continued big demand for plates for this purpose. The placing of a recent order for 40,000 cars for France on top of those previously booked spells a big outlet for plates.

British Place Tonnage

Youngstown, O., Nov. 6.—Contracts have been let by the British for several thousand tons of ship plates. Part of this order was placed with a valley maker who will make shipments whenever he can fit in several hundred tons here and there while working on government specifications for the same material. This is practically the only opportunity valley platemakers have of supplying plates for early delivery to our allies, so heavily are their mills booked with government tonnages.

Study Substitution Plan

Shell Steel Makers Give Consideration to Contract Clauses Permitting Shipment of Commercial Tonnage—Italy Provides for Alteration

Youngstown, O., Nov. 6.—Shell steel makers believing that peace is not far distant are making plans for after-the-war trade as regards the allies. The majority of the British and French contracts for projectile steel carry a substitution clause which says in short that the maker shall provide a tonnage of steel products equivalent to their unfinished orders at the time peace is declared. Conditions at the battle front now have reached such a stage that makers are desirous of knowing just what particular products these governments will require so that future plans can be made accordingly. The British government will be approached soon for the purpose of finding out just what it will need first in the way of rails, plates, shapes, and similar material for use after the war.

In some quarters, shell steel makers have received notification from the Italian government in which it is requested that a substitution clause be added to their recently-made contracts. The clause is similar to that in both the British and French contracts. The recent contracts previously referred to amounted to approximately 90,000 tons as stated in the Oct. 31 issue of THE IRON TRADE REVIEW. This tonnage has now been allocated to various mills in this country. Nothing has developed with regard to the efforts of the British government to obtain a further tonnage of shell steel in this country.

Philadelphia, Nov. 6.—Among recent allocations which have been made by the government for French government uses is contained one to the Cambrai Steel Co. for several thousand tons of wire rods. Nothing further has been heard here about the proposed larger wire allocations for allied and American government use in France.

Shell Steel Demands Big

Pittsburgh, Nov. 5.—No cessation of the extreme activity of the mills rolling rounds for shells is observed. On the contrary, the government still is pressing for delivery on contracts and distribution of billets continues entirely a direct operation between producers and consumers. Certainly, there are no open market offerings of billets, even of small billets. In addition to the use of discards for some lines of wire products, this material lately has been rolled successfully into some gages of sheets. No buying and selling is going on in other semifinished material, for here as with billets, distribution is entirely by allocation.

Peace Prospects

Restricting Factor In Demand For Ferroalloys—Shading Rumored

Pittsburgh, Nov. 5.—Prospects of early peace continue to create extreme caution among consumers of ferroalloys in the matter of their future needs. The undertone of the market is uncertain and as is usually true of a dull market, the present one has a weak appearance. Rumors of course are current that prices are being cut in the effort to interest buyers, but no actual business has been uncovered at lower prices than have lately prevailed. Makers of 70 per cent ferromanganese still are quoting $250 and it is reported that a small tonnage recently was sold at that figure for prompt delivery to a valley consumer. Fifty per cent ferrosilicon still is quoted from $152.50 to $157.50 as to the length of the contract, but no business has been done recently at these figures and the general report is that buyers are bidding considerably less. Low grade ferrosilicon is so scarce for prompt delivery that a few small tonnages of 20 to 25 per cent electrolytic alloy have been taken as a substitute at around $115. The movement of 16 to 18 per cent spiegeleisen is entirely in small lots and there are not a great many such sales.

The Juniata Furnace & Foundry Co., Newport, Pa., blew out its Marshall furnace on Oct. 24, for repairs and relining.

Epidemic Holds Down Iron Output

Illness of Workmen Cuts Production at Coke Ovens and Furnaces—October Total Exceeds Previous Month and Approaches Record—Average Daily Output for Year Now Near Last Year's Figure

PIG IRON production fell off slightly in October. The total output, owing to the extra working day, exceeded that of September and with one exception was the largest ever recorded in any month. Depleted labor forces as a result of illness, held down the production both at the coke ovens and at the blast furnaces. With conditions closer to normal, the October output would have established a new record.

MONTHLY PRODUCTION

	1918	1917	1916
January	2,403,227	3,159,839	3,171,878
February ...	2,318,242	2,649,935	3,078,548
March	3,209,996	3,255,813	3,327,630
April	3,273,355	3,328,061	3,225,496
May	3,451,884	3,413,677	3,364,584
June	3,316,148	3,260,234	3,213,818
Total 1st half	17,972,852	19,067,559	19,381,954
July	3,468,584	3,337,442	3,221,127
August	3,378,479	3,238,970	3,197,838
September ..	3,413,223	3,140,742	3,208,041
October	3,481,316	3,296,286	3,508,180
Total 10 mos	31,654,454	32,080,999	32,517,140
November ...	.....	3,198,597	3,317,805
December ...	.....	2,885,380	3,184,178
Total 2d half	.....	19,097,417	19,637,169
Grand total	31,654,454	38,164,976	39,019,123

The coke and anthracite furnaces of the country produced a total of 3,481,316 tons of pig iron in October, a gain of 68,093 tons over the September production of 3,413,223 tons. Last month's production was approximately 27,000 tons below October, 1916, which holds the record. The steelworks or nonmerchant furnaces produced 2,578,423 tons in October, compared with 2,534,894 tons in September, a gain of 43,529 tons. The total output for the merchant stacks amounted to 815,993 tons, or 17,282 tons above the September total of 798,711 tons.

In October, the blast furnaces produced, on an average, 112,301 tons daily, a loss of 1473 tons compared with the September daily average of 113,774 tons. The daily average for the year has been steadily improving and from the low mark of 77,523 tons in January, has now reached an average of 104,126 tons daily, which is only slightly below the 1917 figure of 104,562 tons daily. The steelworks furnaces produced 83,175 tons daily in October, a loss of 1321 tons compared with September, while the merchant furnaces show a loss of only 302 tons daily, the October average being 26,322 tons and for September 26,624 tons.

Ferro Output Up

Ferro production increased somewhat last month. The total tonnage produced was 40,452 tons, a gain of 8710 tons over September, when 31,742 tons were made. The spiegel production for the month amounted to 46,448 tons, compared with 47,876 tons in September, a loss of 1428 tons.

There were 363 furnaces in blast on the last day of the month, a loss of one, compared with September. Eight merchant furnaces were blown in and six were blown out, a net gain of two. Three steelworks stacks were relighted, while six were blown out, a net loss of three.

The River No. 1 furnace of the McKinney Steel Co., Cleveland, was blown out on Oct. 15 for relining.

The long idle stack at Leesport, Pa., now the property of the Leesport Iron Co., is about ready to go into blast.

The Maryland A furnace, at the Sparrows Point plant of the Bethlehem Steel Co., was blown out on Oct. 30, for relining.

One of the Grand Rivers furnaces of the Suwanee Iron Co., Grand Rivers, Ky., was banked 15 days in September, because of ore shortage

The Keystone furnace of the Northern Ore Co., Widener building, Philadelphia, was blown out on Oct. 14 for repairs. The tops of the stoves gave out and it was found necessary to replace these with entirely new tops.

AVERAGE DAILY PRODUCTION

	1918	1917	1916	1915	1914
Jan. ..	77,523	101,930	102,319	51,323	60,624
Feb. .	82,794	94,641	106,157	59,521	67,450
Mar. .	103,548	105,026	107,343	66,009	75,534
Apr. .	109,112	110,936	107,517	70,484	75,383
May .	111,351	110,119	108,535	72,747	67,646
June .	110,538	108,675	107,127	78,998	63,486
July .	109,954	107,659	103,907	82,687	63,075
Aug. .	108,983	104,483	103,156	89,510	64,403
Sept. .	113,774	104,691	106,935	94,478	62,757
Oct. .	112,301	106,332	113,167	100,656	57,097
Nov. .	.....	106,620	110,593	101,174	50,042
Dec. .	.....	93,077	102,715	103,278	48,236
Avg. .	104,126	104,562	106,610	81,022	62,934

Coke Supply Short

Washington, Nov. 6.—Stocks of coke with 411 blast furnaces listed by the fuel administration were short 145,000 tons of fuel ten days ago from the weekly requirements of 878,325 tons, according to a survey made by the fuel administration. Only three of the 13 districts had supplies sufficient to run them longer than one week. Efforts are being redoubled to increase the output of better grades of coke.

Show More Conservatism

Philadelphia, Nov. 5.—Less anxiety to place contracts ahead is shown by iron and steel buyers except for material they are sure to require in their business and this is ascribed to their belief that the end of the war is imminent. The only cancellations have involved material which would have been cancelled anyway. Not many cancellations are expected while the scarcity of material lasts, but it is believed that there will be considerable wiping off of tonnage if the government begins to rescind contracts for war materials. This development is expected to go toward relieving the present general scarcity of steel.

OCTOBER PIG IRON

States	No. of Stacks	No. in blast last day of month		Total tonnage made		—Totals—	
		Oct.	Sept.	Merchant	Nonmerchant	Oct.	Sept.
Pennsylvania	161	140	142	243,418	1,068,123	1,311,541	1,322,643
Ohio	80	75	74	159,485	646,554	806,039	769,235
Alabama	45	31	30	116,487	91,983	208,470	207,444
Virginia	20	13	13	33,495	.....	33,495	34,094
New York	28	25	26	84,132	140,637	224,769	217,500
New Jersey	5	4	4	13,434	.....	13,434	17,847
Illinois	25	24	23	59,748	268,917	328,665	296,406
Colorado	6	4	4				
Indiana	16	15	15	35,455	291,043	326,498	330,594
Maryland	4	3	4				
Wisconsin	6	4	4				
Kentucky	7	4	4				
West Virginia	4	4	4				
Tennessee	17	10	10	37,652	42,628	80,280	79,762
Washington	1	0	0				
Georgia	2	0	0				
Texas	3	0	0				
Minnesota	3	3	3	32,687	28,538	61,225	58,080
Michigan	3	3	3				
Missouri	1	1	1				
Spiegel—all states	...	...	...	.....	.....	46,448	47,876
Ferro—all states	...	...	...	.....	.....	40,452	31,742
Total	437	363	364	815,993	2,578,423	3,481,316	3,413,223

Exports Continue Large

473,688 Tons Shipped in September, But August Record is Not Exceeded

EXPORTS of iron and steel products for September continued at a fairly high rate, but were not up to the record set in the preceding month. Advance figures of the bureau of foreign and domestic commerce indicate that 473,688 tons of these commodities were shipped out of the United States in September, compared with 512,104 tons in August, a loss of 38,416 tons. For the nine-month period ending with September, the 1918 total was 4,143,437 tons, compared with 4,738,893 tons for a similar period in 1917.

Pig iron exports amounting to 34,494 tons in September, were the heaviest for any month of the year, exceeding by 8466 tons the August figure of 26,028 tons, which previously was the high mark for 1918. In September, 1917, however, these shipments totaled 44,287 tons, or about 10,000 tons over the figure for September of this year. Semifinished material exports fell off sharply with a total of only 135,450 tons, a loss of 54,401 tons compared with August shipments of 189,851 tons, and 13,482 tons less than in September a year ago, when the total was 148,932 tons. For the third time this year, no exports of scrap were reported. A comparison of other commodities on the iron and steel export list, show only slight changes in the September and August tonnages.

Imports at Low Ebb

The steady decline in imports which began about a year ago reached the lowest level in September, when the total was only 8440 tons, compared with 12,520 tons in August and 19,058 tons in September, 1917, losses of 4080 tons and 10,618 tons, respectively. The very marked decline in September imports is due in a large measure to the fact that only 240 tons of pig iron and 2035 tons of scrap were received in this country during that month. In August; the pig iron total was 3910 tons, and in September a year ago, it was 8248 tons, while scrap imports for August amounted to 11,213 tons, and for September, 1917, 5437 tons. Slight increases are shown in imports of semifinished material and steel rails.

Iron ore shipments into this country in September amounted to 76,931 tons, or about double those for the corresponding month in 1917, but 18,961 tons below the August, 1918, figure of 95,892 tons. Canada and Cuba were the only shippers in September and 63,590 tons of the receipts for that month came from the latter country.

IRON AND STEEL EXPORTS, GROSS TONS

	September		Nine months ending September	
	1918	1917	1918	1917
Scrap	.....	1,359	1,679	136,461
Pig iron	34,494	44,287	178,673	515,749
Steel billets, ingots and blooms	135,450	148,932	1,447,352	1,454,241
Wire rods	16,349	15,893	112,135	115,537
Steel rails	43,868	34,248	326,130	372,084
Steel bars	44,894	47,575	464,094	470,768
Iron bars	5,865	3,099	39,725	39,559
Struc. iron and steel	22,545	21,086	175,555	222,376
Hoops, bands and scroll	2,847	4,972	38,714	41,588
Sheets and plates	75,973	70,106	629,587	620,018
Tin and terne plate	19,629	11,595	211,798	172,678
Barbed wire	33,690	28,984	178,536	138,985
All oth. wire	16,537	16,548	119,077	145,596
Cut nails	247	594	3,202	3,010
Wire nails	4,395	9,777	58,579	74,368
All oth. nails incl. tacks	1,346	1,543	8,765	14,568
Pipes and fittings	11,021	19,836	117,874	152,594
R. R. spikes	938	2,605	8,067	15,422
Bolts, nuts, rivets and washers	3,003	2,317	20,103	22,540
Horseshoes	194	3,304	2,439	6,417
Cast radiators	403	407	1,853	4,424
Total	473,688	499,067	4,143,437	4,738,893

In the first nine months of the current year, 613,310 tons of iron ore have been shipped into the United States, compared with 688,402 tons for the first nine months of 1917.

The total valuation of exports of iron and steel products for September amounted to $85,224,051, compared with $106,845,482 for the corresponding month in 1917, while for the nine months ending with September, the 1918 and 1917 totals were $791,230,420 and $908,160,739, respectively. The value of iron and steel imports in September this year was $1,828,565, and for September, 1917, $2,345,896.

IRON AND STEEL IMPORTS, GROSS TONS

	September		Nine months ending September	
	1918	1917	1918	1917
Pig iron	240	8,248	30,092	63,357
Scrap	2,035	5,437	31,930	167,226
Bar iron	.....	192	1,283	2,097
Ingots, blooms and billets	3,999	2,620	29,816	33,432
Structural shapes	166	1,311	1,966	4,056
Rails	1,423	905	5,566	6,400
Sheets and plates	44	142	1,348	1,334
Tin plate	.....	.....	32	125
Wire rods	533	203	7,068	515
Total	8,440	19,058	109,101	278,542

The Non-Ferrous Metals

Copper Lead Spelter Tin

	*Copper	†Spot Straits, tin	‡Lead, New York basis	Spelter St. Louis basis	§Aluminum	Spot antimony
Oct. 30	26.00	.....	8.05	8.75	33.00	13.50
Oct. 31	26.00	.....	8.05	8.75	33.00	13.00
Nov. 1	26.00	.....	8.05	8.60	33.00	11.50
Nov. 4	26.00	.....	8.05	8.50	33.00	10.75
Nov. 5	26.00	.....	8.05	8.50	33.00	10.75

*Government fixed maximum price for prime lake, electrolytic and casting copper, in ingots, pigs, slabs, etc., less than carloads, 27.30c.

†No spot Straits tin offering.

‡Price agreed to by leading interest and independents.

§Government fixed price for 98 to 99 per cent ingot aluminum in 50-ton lots; lots 15 to 50 tons, 33.10c; one to 15 tons, 33.20c.

NEW YORK, Nov. 5—Prospects of early peace overshadowed all other factors in the metal markets within the past week. Following the truce between Austria and Italy, some American manufacturers of munitions and chemicals were asked to suspend shipments. No cancellations of metals for work for the United States government have been reported, but heavy cancellations are expected in the event of an armistice between the United States and Germany, provided such armistice contains the terms "Unconditional Surrender." Practically all government contracts for metals contain what is known as a 30-day cancellation clause, which enables the government to give notice of cancellation within 30 days with adjustments to manufacturers for manufactured products on hand and raw materials purchased for production against the order within 30 days.

Attention was centered in the past week on spelter and antimony, neither of which metals is under rigid government control. Spot antimony was offered at 11c, duty paid New York, this week as against 13c a week ago.

The spelter market has held fairly firm in the face of pessimism in some quarters regarding its prospects in the event of peace. Not only is it expected there will be some heavy cancellations, but stocks are still double those of prewar times, tending to complicate the outlook.

The war industries board last week issued a statement to the tin trade outlining the agreements between the allied governments for the direction of control of pig tin purchases and of distribution. The statement detailed regulations now in force and said that consumers, jobbers, or dealers requiring spot tin can be assisted in locating available stock by communicating with the subcommittee on pig tin, the American Iron and Steel institute, 71 Broadway, New York. The tin market has eased somewhat, spot Banca now being obtainable around 75c, New York. The copper market is unchanged and devoid of developments.

The lead situation continues stringent but the strain is less than a few weeks ago, owing to the elimination of nonessential consumption.

Washington Turns to Trade

Government is Planning Gradual Transition of Industry to Normal Basis

WASHINGTON, Nov. 5.—While guarding against the danger of peace talk, government officials are giving the most serious attention to the question of reconstruction following the war. The enormous task is recognized as one which requires the utmost thought and care. Economic conditions will arise in so many ways and will present problems so numerous that the subject cannot be approached by resorting to any precedents, for there are no precedents to follow, and in consequence the matter of what will happen upon the restoration of peace is to a large degree speculative.

It is conceded that the existing restrictions and control of the nation's industries by various bodies built up for that purpose cannot be abandoned suddenly at the termination of the war, for to do so, it is contended, would throw the industrial situation into chaos. Stabilization must be maintained and to accomplish this restrictions and regulations, although on a readjusted basis, are held to be absolutely necessary.

Legislation will be required if existing organizations are to be maintained long enough to do this, because laws creating them, for the most part, provide for their continuance for only a short time after the war ends. The belief prevails that they will have to be continued, perhaps in a modified form, until the American troops are returned home and demobilized, which some officials think will take from 15 months to two years after hostilities are ended.

For the steel trade, the most interest centers in the war industries board as a probable factor in aiding it in stabilizing the markets after peace comes and indications are that the board will be continued. Its success in aiding the steel trade, along with the other

Danger Seen in Precipitate Cancellations

WASHINGTON, Nov. 5.—Should peace result from the present military and diplomatic negotiations it will not find American industries stampeded into paric, if efforts now being made here carry any weight. Sudden cessation of hostilities on all fronts would tend to lessen the remarkable production which all industries, particularly iron and steel, have been maintaining, but sound and sane considerations are expected gradually to swing manufacturing and business interests from a high-speed war basis to a thoroughly economic peace-time standard.

Contracts made by the various branches of the government with practically all important units of national industries have clauses providing for cancellation, with stipulations by which many of the contractors would be protected financially. A halt in the war program legally might justify abrogation of some of the agreements, but it is believed an avalanche of cancellations would result in an industrial panic that Germany, even with an olive branch in both hands, would gladly welcome.

To prevent such a catastrophe as immediate cancellations would precipitate, a movement is under way in Washington to keep industries in full operation until they can get back into a peace-time stride, at the same time making provision for resumption of a war output should there be a "joker" in peace developments. How far this effort has reached has not been disclosed but the war industries board, despite its firm stand for unwavering war production, has been importuned to consider the proposal and to enlist the good offices of the President.

Sudden cancellation of all war contracts with steel mills would throw fully 75 per cent of productive capacity into idleness and considerable of the remainder, built up on essential civilian needs interlinked with the national war program, would be in a like condition. Plants would be shut down and labor would suddenly be thrown upon the market, not only in the iron and steel industry, but in practically all other war industries, without employment. While the federal reserve banking system was designed and is expected to thwart any financial crises, it is doubtful if it or any other agency would be able to ward off the consequences of such a situation.

The iron and steel trade, along with other essential metal businesses and other industries engaged largely in munitions production would be hit hardest. Commercial lines such as clothing, shoes, food, etc., might not feel the effects so acutely because while peace negotiations are on, troops must be maintained both at home and abroad.

The recent shift in the shipbuilding program has had its effect in some of the steel mills, but efforts are being made to keep ship steel moving as required and to let the mills gradually remove the piled-up war orders of a more military character and at the same time work off what civilian tonnages they can without interfering with the war requirements.

As peace developments warrant, the plan now being considered would be to go ahead with the more essential war orders, gradually abrogating the less important military contracts and allowing the released mill capacities to take up the rapidly growing and essential civilian needs. Millions of tons of steel are required in municipal and public utility development, in road and bridge building, in domestic and agricultural consumption, and all have been held up because of the war program.

The alteration of the shipbuilding schedule is expected to release certain plate mill capacities. Cancelling of some minor projectile and shape contracts would vacate other steel producing machinery. The time necessary for the preparation of plans and specifications for any new government peace requirements, if taking the course required by law, would, with the abrogation of war contracts, cause a disastrous lull that the present movement is seeking to obviate. Some mills have civilian orders on hand and unfilled, but this tonnage is small and is regarded as inconsequential when measured against the effect of cancellations suddenly pouring out of Washington.

Official Washington is discouraging peace talk in the effort to keep war production up to maximum. Officials are, of course, considering the possibilities of after-the-war conditions and, along with similar phases, are weighing the present movement designed to protect the nation through direct safeguarding of industry.

Another phase of the problem arising with the cancellation clauses is this: The country cannot get back to a normal basis with more than 3,000,000 of her men still in the army, even were it possible for industries to pick up peace-time orders the day after war ended. To properly consume all the products of American industries, even allowing for heavy export tonnages, the country must have its full supply of labor. And the present shortage caused by the induction into service of the 3,000,000 soldiers and sailors would still make itself known.

Problems as Peace Dawns

industries over which it exercises restrictions and regulations, is held to be dependent to a considerable extent upon the trade itself. Provided the trade shows such a splendid spirit of co-operation with the board in helping it to readjust conditions to peace times as it is showing under war conditions, the problems, vast as they may be, assuredly will be solved, is the official opinion here. This is an important feature of the government's program for assisting business interests during the trying period of reconstruction, a program which may have been worked out more extensively than surface conditions indicate.

The cutting off of steel mills from the production of shell steel, ordnance and other war supplies without halting the wheels of industry, and turning them to peace-time production admittedly is a serious question, although some officials think the change will be much less violent than do others. Much commercial business of all kinds, it is pointed out, has been held back to make way for the production of war material. The opinion here is that this commercial business can be put forward on the books and the shift made without any great disturbance to industry, although considerable scrapping of machinery and plants suitable for war production only may follow.

The war industries board, the fuel administration, the shipping board, the war trade board, war labor board, war labor policies board and similar organizations are being looked to for guidance by the industries of the country, and, in the case of the shipping board it is not unlikely that it will remain a permanent institution, inasmuch as it is definitely settled that the merchant marine built and being built shall be maintained. Plans for eliminating strikes probably will be continued. Promotion of collective bargaining through extension of labor and trade federations grows more extensive as time passes, and business interests believe labor may endeavor to exert a greater influence in the management of their plants than ever before.

Another organization that promises to play an important part in after-war conditions is the War Finance corporation, which may aid in the conversion of industries from war to peace footing, changing the present priority of war enterprises and giving financial assistance to bring about the process of reconstruction to those concerns which were diverted

New Ship Plans Release Steel for Allies

WASHINGTON, Nov. 5.—Steel tonnages released by the revised shipbuilding program are to be used mainly in meeting the essential unfilled demands of England, France and Italy, it has been learned at the offices of the steel division of the war industries board. While the railroad administration may get some of the steel formerly intended for ships the war industries board is of the opinion the requirements of the three principal allies, so closely and largely related to the character of material being rolled for the shipping board, are of first importance.

Italy particularly has been held up in her steel program while France and England have not pushed forward some of their essential needs, all being secondary to American demands, which have been given preference in order that ships and materials might be provided for rushing troops and supplies of the United States overseas. The action of the shipping board, however, lessens the demand in this country particularly for plates, shapes and bars, materials which are considered vital to our allies.

Actual figures are not available to show what tonnages are being stricken from the account of the Emergency Fleet corporation, being unavailable at this time because of their military nature. It is stated, however, that considerable reduction has been made. This action of abrogating and revising contracts for a large part of the shipbuilding requirements, affects a substantial tonnage which, under other circumstances, might have serious effects in the steel industry. But because of the similarity of the allies' needs and those of the fleet corporation production of this steel can go forward without interruption.

The new program of the shipping board, which is to be carried out by the fleet corporation, contemplates completion of all present contracts by the end of 1919.

It is the desire of the shipping board to have the great bulk of its steel requirements out of the rolling mills by the end of the second quarter next year. By the end of the third quarter, it is planned, all of the lags and odd sizes will be on the way to the yards. This will clear the mills of Emergency fleet contracts for 1919 and will provide ample time to consider and meet the needs of whatever shipbuilding program may be determined for 1920. This is the aim of the shipping heads and it is expected it will find support in the steel industry.

At a meeting with order managers of several of the larger ship steel manufacturers, of purchasing agents of the fleet corporation and representative shipyards, and of government and American Iron and Steel institute officials last week, it was made clear to the shipbuilding interests that from now on they will get only such tonnages as they will actually require to meet the revised 1919 program. This was entirely agreeable to Mr. Hurley and others of the shipping board and the fleet corporation.

Steel Director Replogle now is planning the reassignment of American ship steel orders for Italy, England and France. New tabulated requirements of the interallied munitions council have been submitted to the war industries board and, although the actual tonnages cannot be stated, it is known these requirements will be more than sufficient to take up the slack in production occasioned by the withdrawal of the American shipbuilding tonnages. Thus it is assured the rolling mills of this country will, for the time being, be called upon to maintain the tremendous rate of production which today finds hundreds of thousands of tons of steel piled up in the yards waiting fabrication into ocean-going vessels.

The opinion was expressed here as soon as the effect of the revised shipbuilding plans was considered, that much of the mill capacity vacated by the cancellations would be turned over to orders from the railroad administration for another 100,000 freight cars. The foreign situation puts this interpretation in the background, but the hope has been expressed at the offices of the railroad administration that the way may yet be found by which more cars, possibly not as many as 100,000, can be ordered. Later developments may bring about the realization of this hope.

At the meeting here last week, when the subject of steel for ships was considered, Director Replogle presided. With him was Chairman Hurley. Those who attended were Frank Purnell, assistant to Mr. Replogle; M. F. Brown and A. E. Goodhue, of the production division, Emergency Fleet corporation; A. W. Christian, purchasing agent of the Bethlehem Shipbuilding Corp.; G. L. Gillette, purchasing agent, the American International Shipbuilding Co.; C. E. Hendrickson, purchasing agent, Sun Shipbuilding Co.; J. P. Kessler, manager of orders, Carnegie Steel Co.; F. H Lewis, manager of orders, Midvale Steel & Ordnance Co.; James B. Bonner, vice chairman, and Francis J. Hall and O. P. Blake, members of the subcommittee on steel distribution of the American Iron and Steel institute.

to war production at the behest of the government.

Necessity, it is pointed out, will call for closer co-ordination of railroad transportation, industrial production and overseas shipping, but hope is expressed that this will not permit any socialistic system being erected through government control or supervision. Universities, schools, churches, employment agencies and other organizations, it is not improbable, may be instruments used to facilitate the placing of returned soldiers in occupations.

It is known that the question of industrial reconstruction has been discussed by President Wilson with officials of the government organizations, and that they have also discussed the international problems involved. According to report, it was at the suggestion of the President that the council of national defense began several months ago to obtain information from all the government departments and bureaus with regard to tasks that can be performed by them as peace-time organizations. Data along this line have been gathered until they form an enormous volume of material, the research work being done largely by Walter S. Gifford and Grosvenor Clarkson, director and secretary, respectively, of the council. Mr. Gifford returned recently from Europe with information on tentative reconstruction.

United States to be Market for the World

THERE can be no question that one of the most vital points in the entire program relates to the gradual removal of restrictions on raw materials in the United States, which will lead to the restoration of the law of supply and demand, with adjustments in foreign exchange to the new conditions growing out of war financing.

It is believed European belligerents, as well as neutral nations of the entire world, will make tremendous demands for raw materials and food and that this country may have to husband, at least for some time after the war, many of its raw resources. Demand for semifinished and finished lines, especially for steel, to rebuild devastated territories, it is believed, will be heavy soon, if not immediately after the war. This is a question of more or less uncertainty, however, according to some officials. For instance, it is pointed out that, with France recovering Alsace-Lorraine, which seems to be an essential condition of peace, that country will become a vastly heavier producer of iron and steel to meet its own requirements for reconstruction, as well as for other purposes, than heretofore. Germany, on the other hand, will become a much less important iron and steel producing country.

Reports coming to Washington also indicate that price regulation is sought for some time after the war, a general desire being expressed that levels on raw materials and manufactured products shall not be either so high or so low as to destroy production. Through slow withdrawal of preferences and priorities to industries that have been put on war production, it is expected that normal conditions will be restored without any great disturbance. When that is done industries will want the government to give up its broadened powers and permit them to operate free of any hampering restrictions.

How Board Members May Aid

It is conceivable that some of the war organizations may, sooner or later, be broken into units and attached to various permanent bureaus of the government. The intimate knowledge they have of industries of the country, some of the members of the organizations being prominent producers, would render their aid invaluable both to government and business interests. In this connection, much interest has been manifested in the address delivered last Thursday before the convention of the American Manufacturers Export association at New York by Burwell S. Cutler, chief of the bureau of foreign and domestic commerce, department of commerce. Mr. Cutler made an urgent appeal for an expansion of the department of commerce to meet the demands that will be made upon it as soon as the war is over. He asked for more commercial attaches to be located throughout the world and aid in building up trade for America, and said that eventually the department should have added to it a bureau of industrial practice that would assist in eliminating waste in manpower, time, material, and overhead cost; also a division of material valuation for studying the original sources, the handling and the grades of foreign and domestic materials, a division of information on internal water and railroads, a division of distribution economy, and a division of cost finding methods.

Thousands Quit War Work for Other Jobs

WASHINGTON, Nov. 5.—Believing the end of the war is near, thousands of men and women employed in munition plants are either resigning or preparing to resign, according to an official of the labor department, which department is showing considerable concern over the situation. Great difficulty is being experienced by every department in keeping working forces intact. Employes seem anxious to leave war work and find employment permanently connected with peace pursuits.

It was stated also that manufacturers who have been using their machinery to make munitions are preparing to shift to peace production. There seems to be a general belief, with some dissent from the view, that the country is to enter upon a period of unprecedented prosperity, a prosperity that will be substantial and constructive. Commodities that have been considered as nonessential, it is stated, will be produced in abundance.

"Consequently, it is not to be wondered at that the mechanic who is a substantial citizen with a stake in the country should begin to set his house in order and prepare to resume employment that is valuable chiefly under peace conditions," said the labor department official. "They all realize that their present employment is only temporary.

"They want to return to the manufacture of farm machinery, automobiles, bicycles, motorcycles and other commodities which the nation must have whether in war or peace, but especially in peace. It is extremely difficult in some of the plants to keep anything like a sufficient working force together. Of course, if Germany makes up her mind to fight to the bitter end the men will have to be aroused again to renewed effort in fulfilling their part of the win-the-war program.

"But while peace seems to be within the grasp of the world it is hard to induce the men to work with war enthusiasm. Both manufacturers and men are beginning to adjust themselves to what they believe will be the inevitable result of the present negotiations. Germany, they know, cannot hold out, and they believe they have kept their part of the patriotic compact in making the munitions necessary to bring the combat to a successful conclusion for the United States and the allies."

At the offices of the United States shipping board it was announced that there is a shortage of 200,000 men. But, it was stated, because of the generally recognized necessity for a big and efficient merchant marine, the board had lost few men since Germany began to beg for a suspension of hostilities. The shipping board will obtain many recruits from the other industries which the end of the war will terminate, it was asserted.

Solving Marine Engine Shortage-

by V. G. Iden

CHARLES M. SCHWAB, director general of the Emergency Fleet corporation, has set 700,000 deadweight tons as the monthly accomplishment of shipbuilding by next spring. This does not mean merely ships launched but ships equipped with engines, boilers and other machinery necessary to place them in service. During the past year the shipping board has been inclined to measure accomplishment in the terms of the tonnage launched. But during the past year experience has shown that a ship may be launched and remain at the fitting-out dock for weeks because the necessary machinery could not be obtained. To make possible the great record set by Mr. Schwab for next spring demands the maximum production capacity of all plants that can build marine engines. The director general would undoubtedly not have made his promise of 700,000 tons per month had he not felt confident that American engine builders would be capable of filling the orders.

The shipbuilding program is bringing out a great new industry in the United States which must, in time, redound to the benefit of American commercial undertakings in general. A plant capable of building marine engines is capable of building engines for other lines of work, and it will be these engines which will be placed on the market when shipbuilding lags, should it ever lag. The incentive given to engine building now because of the shipping emergency promises to encourage the development of an industry which will not be entirely dependent upon a single market. It will be one that can safeguard its prosperity by finding many sources of outlet.

That the marine engine production of the United States has not as yet been adequate to meet the requirements of the Emergency Fleet corporation is not due to any lack on the part of American builders entirely but more because of the peculiar demands made for particular types to equip the standardized ships now building for our merchant marine.

It is generally known that it is intended to equip the so-called standard wooden ships with reciprocating engines, and the larger steel ships with turbine engines. For instance the vessels launched from the Hog island shipyard will all have turbine engines. The same engine will be used on the ships built by the Submarine Boat Co. Early last spring the shipping board instituted some negotiations with the navy department for the purpose of obtaining some of the turbine engines building for navy vessels. The navy refused to relinquish its prior right and the merchant vessels were compelled to wait.

Forced to give way to the navy in its building program, compelled to develop new sources of supply for engines and other machinery equipment, the Emergency Fleet corporation has accomplished no mean task. Up to Sept. 1, 1918, for instance, the corporation has caused to be launched from American yards more than 3,000,000 deadweight tons of merchant ships. At that time a little more than 1,000,000 tons had not yet been completed, that is, equipped. To say that practically one-third of the ships built for the Emergency Fleet corporation had not been equipped with engines and other machinery, appears upon the face of it a serious indictment of the work of the corporation. There are, however, extenuating circumstances which are not fully appreciated even by the initiated.

During September 74 ships, representing a total of 362,635 deadweight tons, were delivered complete and ready for service. Mr. Schwab has estimated that the ships thus equipped and delivered ready for service in October will total 400,000 tons. The September deliveries exceeded the previous high record for American yards of August by 30,017 tons. Consul General Skinner at London advised that the production of the British during September totaled but 231,635 deadweight tons. Therefore it is shown that American engine builders are today exceeding the record of the British. If Mr. Schwab's promise is carried out this increase over the British should grow rather than merely keep pace or diminish. Of these September deliveries in the United States, 45 were steel ships of a total 257,970 deadweight tons, and 29 were wooden and composite ships of a total 102,665 deadweight tons.

The production records of American plants are today so large that it is not just to compare them with the prewar records. The highest record of ship production in the United States prior to the war was 400,000 deadweight tons per annum. This is today the monthly production of American yards. This great capacity for building engines, for that is the measure in which American shipbuilding accomplishment is now estimated, has been developed practically during one year. Such phenomenal success has been attained that Mr. Schwab was prompted to declare early in October that the emergency shipbuilding requirements have now been met. The

duty from now on will be to produce new tonnage to meet the growing demand, to bring American troops back from France when the war is over and to carry the enlarged foreign trade of the United States during peace.

The navy had contracted for the output of American builders before the shipping board got well started on its program. Just as it was necessary to build new yards in which to construct merchant hulls, so it was necessary, on a more or less limited scale, to discover new makers of marine engines for these hulls. The Hog island yard, with its 50 ways, and its fitting-out docks capable of accommodating 28 ships, will be able to work on 78 ships at one time. This yard alone has contracts with the government for 180 vessels, all of which will be completed within the next 18 months, according to the promise made by its managers. These ships will require 570 boilers alone, and all of them will have turbine engines. The yard had, to Oct. 10, launched but three ships and the first of these, it was then said, would be completed and delivered for service within a few days. Therefore to fill the whole contract of 180 ships between now and next fall will alone make great demands upon American engine builders.

Beginning Was Slow

The record of achievement would not be complete without an account of the beginnings. On Aug. 3, 1917, the shipping board issued its famous requisitioning order. At the end of the calendar year it was reported by E. N. Hurley, chairman of the board, that 49 vessels of a total of 300,865 deadweight tons had been completed and put into service. Of more recent date the shipping board reported that deliveries by American yards, and deliveries mean that the vessels have been completely equipped, totaled 327 seagoing ships of 1,952,675 deadweight tons up to Aug. 31, 1918. Between the first of the year and the end of last August, therefore, over five-sixths of the tonnage equipped during the first year of operations were completed. The first million tons of complete ships were obtained by May last. The second million were obtained by August. In other words it required eight months to obtain the engines, boilers and other equipment and complete the first million deadweight tons of ships by the Emergency Fleet corporation and only about three months to equip the second million.

If this increase is maintained there will be no delay in completing the merchant vessels launched after the present calendar year, despite the fact that approximately 1,000,000 deadweight tons of ships already launched are today not completed because their machinery has not all been installed. With the promise just made by Mr. Schwab, in which the greatest confidence must be placed, it is not unreasonable to expect that the engine and boiler production will be such as to make it possible to be equipping ships at the rate of 500,000 tons a month by the end of the year.

Piez Makes Forecast

"Under the direction of the Fleet corporation," said Charles Piez, vice president and general manager of the corporation, "the producing capacity of engines, turbines, boilers, deck machinery, forgings and anchor chains has been considerably increased, and we are now fairly certain that a program of 8,000,000 tons of combined wood and steel ships can be taken care of in 1919."

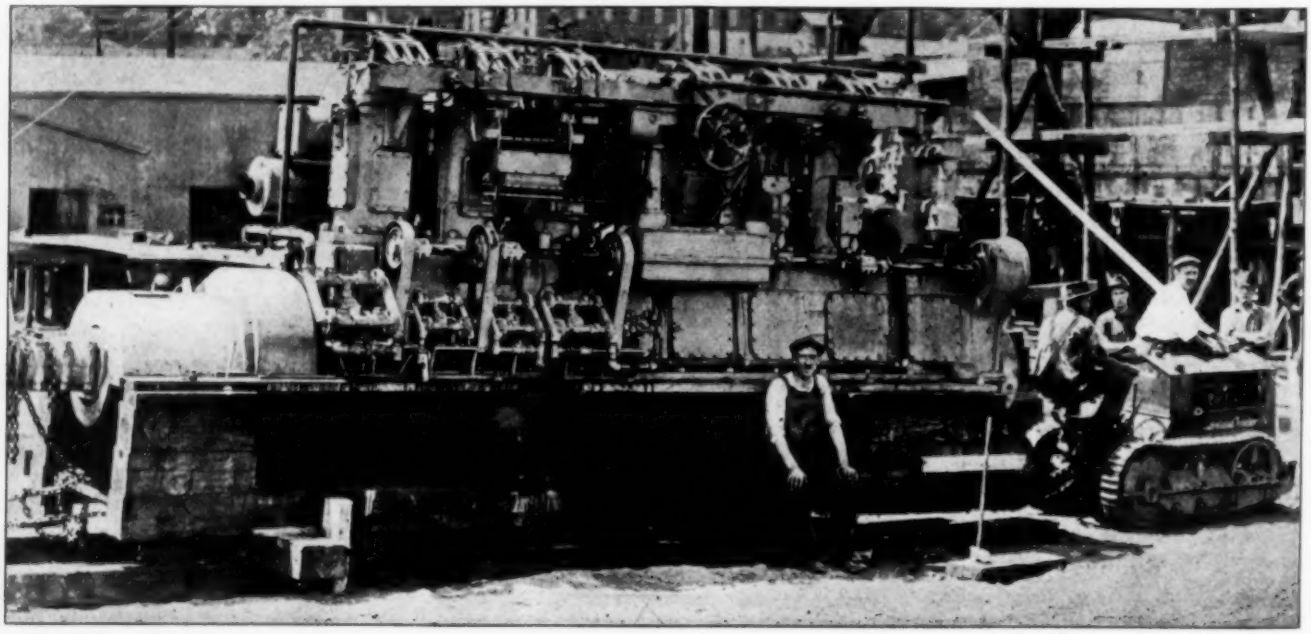
As Mr. Piez pointed out, it is vital that the other war requirements of the government be cared for. The navy must have turbine engines for the new destroyers. Materials are required for various war activities which, under other circumstances, might be diverted to the manufacturers producing marine engines.

Engines for the ships under construction when requisitioned had been contracted for, and these engines should not be confused with those which were contracted for by the Emergency Fleet corporation to place upon ships building for the government. It was necessary to specify a design of engine for the standard wooden ship and likewise a design of engine for the standard, fabricated steel ships. The design of the engine and boilers for the wooden ships were altered by Admiral Bowles after he became an official of the Emergency

Engine Makers to Arms

AMERICAN builders have supplied marine engines to equip approximately 2,000,000 deadweight tons of new merchant ships for the government during the past year. During September 74 vessels were equipped, of a total exceeding 360,000 tons. While this record exceeds the British output, about 1,000,000 deadweight tons of ships have been launched but not completed because of the engine shortage.

Charles M. Schwab, director general, Emergency Fleet corporation, estimated that 400,000 tons of ships would be equipped and placed in service during October. By next spring he prophesied the production of the engine builders would be of such a capacity as to permit the equipment and delivery of the new ships at the rate of 700,000 tons a month. Charles Piez, vice president and general manager of the Emergency Fleet corporation, has promised that 8,000,000 deadweight tons of ships would be added to the American merchant marine in 1919. This would be four times as much as the total tonnage of America's overseas fleet prior to the war. The fruition of this program depends entirely upon the ability of the marine engine builders of the United States.



A 27-TON DIESEL ENGINE HAULED FROM FREIGHT YARDS TO TANK-SHIP BUILDING CORP., NEWBURGH, N. Y., BY A CLEVELAND TRACTOR

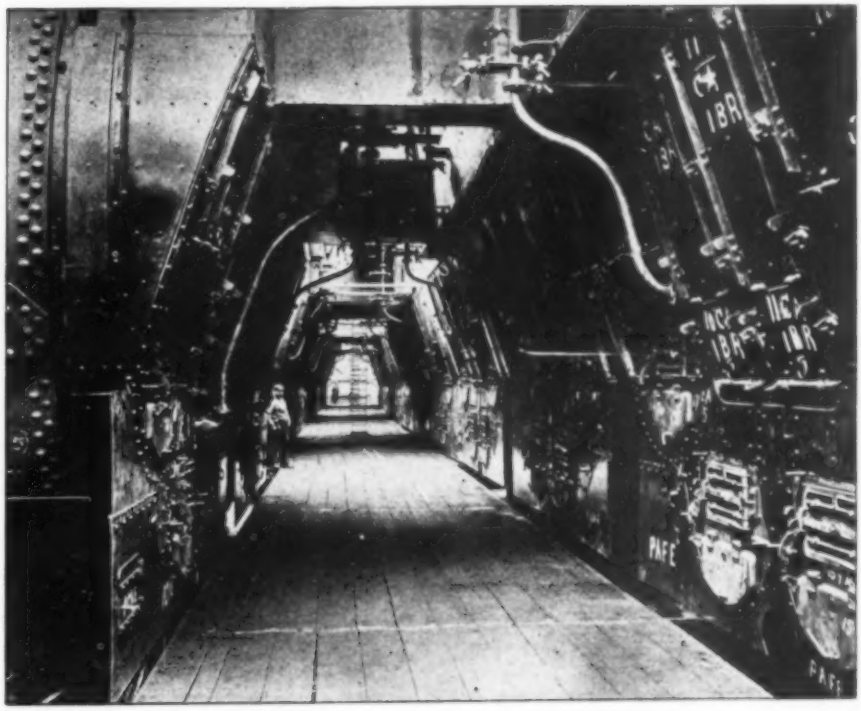
Fleet corporation. This, it has been alleged, caused some delay in the completion of some of the wooden ships.

New Contracts Let

For the single screw, Ferris type, wooden ships, 1400 horsepower triple expansion engines are employed. On the twin screw. Hough type wooden ships, two 700-horsepower triple expansion engines are employed. To Sept. 21 last, but 87 of these engines had been produced. The following companies have contracts with the Emergency Fleet corporation to build the 1400-horsepower engines: Badenhausen Co.; Buckeye Engine Co., Salem, O.; Clark Bros. Co., Olean, N. Y.; Filer & Stowell, Milwaukee; Hendricks Mfg. Co.; Hooven, Owens & Rentschler, Hamilton, O.; Llewellyn Iron Works, Los Angeles, Cal.; Marietta Mfg. Co.; Nordberg Mfg. Co., Milwaukee; Puget Sound Machinery Depot, Seattle, Wash.; Traylor Engineering & Mfg. Co., Allentown, Pa.; Union Machine Co., Worcester, Mass., and Worthington Pump & Machinery Corp., New York.

The following companies have contracts to build the 700-horsepower engines: Buckeye Engine Co., Salem, O.; Builders Iron Foundry, Providence, R. I.; E. J. Codd Co., Baltimore; The Chuse Engine & Mfg. Co., Mattoon, Ill.; Dodge Mfg. Co., Mishawaka, Ind.; Sumner Iron Works, Everett, Wash.; General Ordnance Co., Denver, Colo.; Hendricks Mfg. Co.; Howes & Phillips Iron Works, Newark, N. J.; Murray Iron Works, Burlington, Iowa, and Main Iron Works.

Steel ships of the smaller sizes use two types of engines. One is the 1400-horsepower engine identical to that for the wooden ship. The other is a 1600-horsepower triple expansion engine, of which only four had been produced up to Sept. 30. In the majority of cases steel ships are fitted up with turbines. A 2800-horsepower engine is used in the larger and faster steel ships.

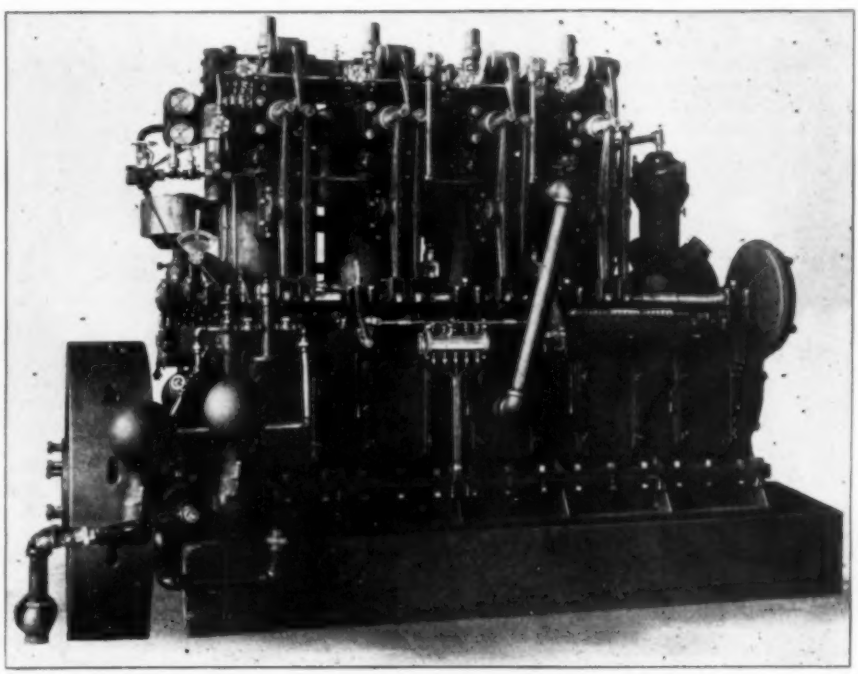


BOILERS AND FURNACES OF TYPICAL OCEAN LINER

Contractors building the 1600-horsepower engines are: Ellicott Machine Corp., Baltimore; and Erie City Iron Works, Erie, Pa.

Contractors building the 2800-horsepower engines are: Hooven, Owens & Rentschler, Hamilton, O.; Llewellyn Iron Works, Los Angeles, Cal.; O'Neil Iron Works, San Francisco; Badenhausen Co.; Ingersoll-Rand Co., New York, and Allis-Chalmers Mfg. Co., Milwaukee.

Small concrete ships will use the 1400-horsepower engines. Large concrete ships will use the 2800-horsepower engines. A 450-horsepower compound marine engine is planned by the shipping board for harbor tugs, and an 850-horsepower triple expansion engine for seagoing tugs.



STARBOARD SIDE OF 250-HORSEPOWER DIESEL ENGINE

Develop Diesel Engine

The lesson in economy in power production and use which America is forced to learn under war conditions is inclining a large number of people to consider carefully the claims of the internal combustion engine. The department of commerce has been interested in the diesel engine from the very first, and recent negotiations of the Emergency Fleet corporation prove that it has at last subscribed in part to the present trend of thought. The bureau of mines of the department of interior has also found sufficient interest in the matter to make a study of the diesel engine from the point of view of economy in fuel. A number of diesel engines, it has been announced, will be built for the Emergency Fleet corporation, but none has been produced to date. Under contracts let McIntosh & Seymour Corp., Auburn, N. Y., are designing a 750-brake-horsepower diesel oil engine, and Skandia Pacific Engine Co., San Francisco, are designing an 825-brake-horsepower diesel oil engine.

The limits of the peculiar field in which each engine is pre-eminent constantly change with the fluctuating costs of fuel, labor and investment. The diesel engine is so far the most efficient mechanical device produced for changing the heat of fuels into power, the bureau of mines holds. That the fuel must be in liquid form and, therefore, relatively expensive, has been one of the elements that has so far limited its use in competition with power plants starting with solid fuel, but the rise in price of coal and the increasing production of burnable fluids from coal distillation

may at any time produce a profound change in these relations. For ship-propulsion the diesel engine offers another economy which is not apparent when the engine is used in a stationary position. The space required for fuel is much smaller, which renders a much larger proportion of the ship's space for cargo.

"The advantages of ships equipped with diesel engines," said the bureau, "lie not merely in the greater cruising radius obtained with a given quantity of fuel, but in the increased cargo space made available, as the liquid can be stored between the double bottoms of the ships, in dead space otherwise filled with ballast water."

Inasmuch as the shipping board has at last taken the initiative and begun seriously to develop the diesel engine for ship propulsion, many authorities will be persuaded to renew their faith in the ability of the Emergency Fleet corporation to put a vast new fleet of merchant ships in service next year. While the first step has been to interest but two American builders, the shipping board will find many other engine builders experienced in the construction of diesel engines and prepared to take up the manufacture of whatever type the shipping board prefers. The bureau of mines has made a study of the various types of diesel engines built in the United States. From its report on this study the following summary of different designs has been taken:

The Allis-Chalmers Mfg. Co., Milwaukee, builds a horizontal engine with gas-engine head and eccentric-driven admission and exhaust valves. The horizontal compressor is mounted on the side of the engine frame. It uses the Lietzenmayer system of open fuel nozzle, and variable-stroke plunger fuel pump, which delivers the fuel in the fuel valve during the suction stroke.

The Busch-Sulzer Bros. Diesel Engine Co., St. Louis, was originally The Diesel Motor Co., and later the American Diesel Engine Co., and the first to build diesel engines in America, since 1898. It still controls a number of the earlier American diesel patents. It is now associated with Sulzer Bros., Winterthur, Switzerland. Types of stationary engines placed on the American market by this firm are four-cylinder units with closed crank case and four-stroke cycle, the vertical air compressor having the appearance of a fifth cylinder.

The Dow Pump & Diesel Engine Co., Alameda, Cal., builds a vertical multicylinder, four-cycle engine, under license from Williams & Robinson, Rugby, Eng. It is of A-frame construction and conforms to established European diesel engine practice. The compressor is of the direct-connected, completely enclosed Reavel type.

The Fulton Iron Works, St. Louis, builds the well-known Tosi engine under license from Franco Tosi, Milan, Italy. The engine is built in vertical multicylinder units with four-stroke and two-stroke cycle, and with A-frames and vertical two-stage and three-stage compressors, depending on the size of the engine. With few modifications, it is built along the lines developed by its European builders.

The Fulton Mfg. Co., Erie, Pa., builds an engine of the marine type but which can be adapted to stationary work. It is built as a multicylinder engine with four-stroke cycle and with vertical two-stage compressor. It is not directly reversible but uses a mechanical reversing gear.

Design Special Types

The Lyons Atlas Co., Indianapolis, developed its own engine, built as two, three, four and six-cylinder vertical units with four-stroke cycle, all with one standard-sized cylinder of 150 horsepower. Admission and exhaust valves are operated through eccentrics, actuating wiper cams and valve levers. The fuel valve is placed in the side of the cylinder head and is also driven by an eccentric. This company designed its own fuel pump. The pump consists of a measuring plunger, whose travel is influenced by the governor. Injection and starting air is furnished by a separately driven Ingersoll-Rand air compressor.

The McIntosh & Seymour Corp., Auburn, N. Y., is the American licensee of the Swedish diesel Engine Co. (Aktiebolaget Diesels Motorer, Stockholm, Sweden), and owns the American patents and rights of that company. It builds stationary and marine engines with individual A-frames and closed crank cases. They have a four-stroke cycle, and are equipped with three-stage compressors. The fuel valve developed by Hesselmann is used. In design the engine follows the well-established practice of its European builders.

The engine of the National Transit Pump & Machine Co., Oil City, Pa., is horizontal and is fitted with gas-engine head and rocker and wiper type of valve gear driven by eccentrics from the lay shaft. An open fuel nozzle is used, the injection air valve being operated from the lay shaft by means of a cam. The fuel pump and the governor are mounted together on the side of the main engine frame. A two-stage air compressor, mounted on the side of the main frame, furnishes the injection air. The engines are built as single and twin-cylinder units in sizes from 50 to 350 horsepower.

The New London Ship & Engine Co., New London, Conn., builds both stationary and marine engines under license from the Maschinenfabrik Augsberg, Nurnberg.

The Nordberg Mfg. Co., Milwaukee, is the American licensee of Carels Bros., Ghent, Belgium. It builds a single-acting two-stroke engine duplicating the well-known Carels design.

The engine developed by the Southwark Foundry & Machine Co., Philadelphia, is a single-acting, two-stroke vertical multicylinder engine used chiefly for marine purposes; it is then built directly reversible. Differential pistons are used in the engine, the offset being employed to compress the scavenging pump. Air is admitted into the scavenging pump through ports, when these are uncovered by the piston. Only the fuel valves are in the cylinder head. Compressed air for fuel injection for starting and for reversing the engine is furnished by a three-stage compressor.

The Snow Steam Pump Works, Buffalo, N. Y., subsidiary of the Worthington Pump & Machinery Corp., New York, builds horizontal, single-acting diesel engines having two-stroke and four-stroke cycles. Engines with the four-stroke cycle have all valves in the head driven from a cam shaft, which is engaged through miter gears by the governor shaft. The pistons are connected with a crosshead carried in a guide.

Automatic Door Hoist for Open Hearths

A DESCRIPTION of an automatic door hoist for an open hearth furnace, which in many particulars is superior to hydraulic and other lifts, recently was given in a paper presented at a meeting of the Association of Iron & Steel Electrical Engineers, by W. H. Burr and H. A. Lewis, of the Allen Wood Iron & Steel Co., Norristown, Pa. According to the authors, this hoist, during the nine months which it was operated, was not mentioned once in the daily reports of breakdowns and interruptions. A successful door hoist must be simple, rugged and absolutely automatic. It must be simple because it is almost impossible to interest prospective purchasers in a complicated mechanism, when an air hoist or hydraulic lift, such as is commonly used, would suffice. It must be rugged, because the nature of the work is such that nothing frail will stand such operating conditions, and it must be automatic, because it is operated by men who have no knowledge of control equipment. In fact it must be so constructed that if the operator should hold his finger on the push buttn and fall asleep, the door will open and no damage result to any of the equipment.

This installation which involves an entirely new idea has a motor rated five horsepower, 220-volt, direct current, 1100 revolutions per minute, compound wound, interpole, with high resistance. Armature winding is so designed that it can be thrown directly on the line without starting resistance. This feature avoids any trouble due to starting resistance and reduces the cost of the control equipment.

The control is of an automatic push-button type; consisting of two single-pole contactors with bottom contacts and overload relays. The nature of the control is such that dynamic braking is obtained, and as a result it is necessary to have a certain amount of resistance permanently connected in the armature cir-

cuit. The shunt coil on one of the contactors is energized, closing one of the contacts, and as the bottom of the other contactor is in a closed position, the motor starts and operates as long as the circuit is held closed by the operator. The instant the push-button is released the contactor opens and the bottom contactor closes the resistance across the armature, giving dynamic braking, which stops the door; the time varying with the amount of resistance in the armature circuit. This particular application was made because the control which was ordered had not been received at the time the hoist was put into service. The remaining portion of this equipment consists of the hoisting mechanism with the automatic release which eliminates any necessity of limit switches, and makes it impossible to put an overload on the motor.

Features of the Release

The circumstances which led to the development of the release are unique. While erecting a crane on the runway in an open hearth, certain parts were being raised into position by an electric hoist, around which were a couple of turns of the free end of the rope used in hoisting. The hoist was started when the lift was to be made, the free end of the rope was tightened, and the part raised to its desired position, whereupon the rope was again slackened, allowing the hoist to keep on running, but keeping the part to be raised in a stationary position in the air. The idea was at once conceived of making use of this principle for an automatic release.

The release consists of a shaft having fixed to it a gear, whereby it may be driven in either direction from a suitable source of power. Fixed to this shaft are a pair of shoulders in the form of discs, having on their adjacent faces, plates of suitable friction material as is employed on braking surfaces. Between these two shoulders, loosely mounted upon the shaft are two cylindrical members having inclined co-acting faces lying in a plane at an acute angle to a radical plane of the shaft, the arrangement being such that a rotary movement of one of the members relatively to the other will necessarily cause them to move apart and jam against or grip the friction material on the discs. Each carries a drum or grooved wheel and both are provided with projections in the form of lugs, capable of engaging a fixed stop, so as to prevent the revolution of their respective members. To the drum is attached one end of a cable whose second end is connected to a weight to be moved, while a second cable is connected to the other drum, so as to be wound thereon in a direction opposite the cable on the first drum, the second cable being connected to another body.

With this arrangement when viewed from the right hand end of the apparatus, the right cable is wound on its drum so that the body attached to it will be raised by a clockwise rotation of the right drum, while rotation of the left drum will permit the left cable to unwind and lower the weight attached to it. These two bodies acting through their cables relatively turn the drums through a small angle, causing their inclined co-acting faces to move them laterally and grip them to the friction discs, so that if the shaft be turned in a clockwise direction, they are turned with the discs and the shaft, thus raising the right weight and lowering the left. When the right body has been raised to the desired height the parts are so proportioned that the lug comes into contact with the stop, thus stopping the rotation of the left drum. A very slight continued forward clockwise movement of the right drum, releases it to its neutral position in which it does not grip its disc with sufficient force to be rotated by the shaft, and as a consequence, the shaft and discs are free to rotate, while the two drums are operating disconnected from them, though held in the positions to which they have been brought. The shaft may in this way continue its operation without overloading the source of power by which it is driven.

Reverse Shaft Movement

It has been assumed that the two weights are of equal mass, and when the direction of rotation of the shaft is reversed, so that with its associated parts turns in a counter-clockwise direction, it at once acts to again force the drums apart, and cause them to grip the friction plates; as they turn, the lug moves away from the stop, one body is raised and the other lowered until the lug again engages the stop.

The door is raised by a motor which is connected to the driving shaft by a sleeve coupling. On the forged steel driving shaft is a worm which engages a bronze worm gear, the ratio being 50 to 1. The friction discs are made of fiber, are 10 inches in diameter and are so arranged that they can be easily lubricated. The angle between the co-acting faces is about 26 degrees, and when used under these conditions, the release will operate satisfactorily with a difference between the door and counterweight of 600 pounds. The diameter of the disc on which the chain is wound is 16½ inches, giving the door a speed of approximately one foot a second, or a complete opening of the door in three seconds.

Iron Fields of France Wrested From Foe

ANOTHER chapter has been written in the metallurgical history of France by the brilliant action of General Pershing's troops in loosening the bonds which have encircled the Briey basin, followed within a few days by an advance of the Americans northwest of Verdun.

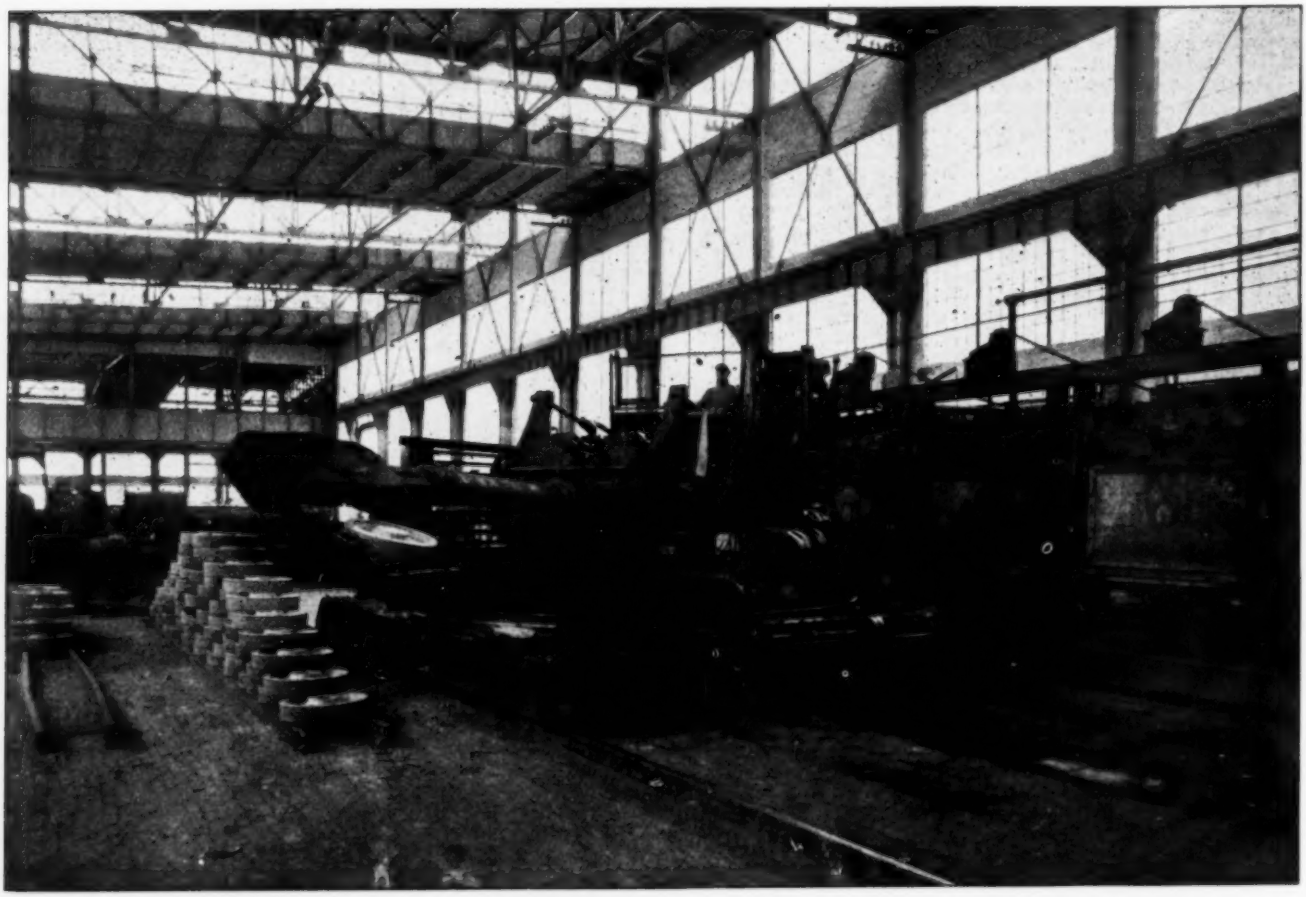
It has long been a commonplace to say that if Germany had not invaded the Briey and Longwy iron fields in the early part of the war the war could not have gone on, but the fact is nothing has been so accusing of the German plan as that confidential circular which was issued by the German Industrial Association of Iron and Steel Manufacturers at Dusseldorf some months ago.

Five billion tons of iron ore was in sight in Normandy and practically all of it was marked by Germany, working through a series of *soi-disant* French exploitation companies. There was not much secret about it since the export statistics from the Norman ports of Caen and Ouistreham showed that large quantities of ore were being shipped to Germany; but the fact was ignored, largely for the reason that it made profits for the French of the immediate neighborhood with mine interests.

This, then, is an old issue. What is more important is that the Dusseldorf document shows plainly the Germans' aspirations on the deposits of French Lorraine which was supposed to equal 2,600,000,000 of tons, a notable addition to the German deposits of Thionville, which only equal 2,000,000 tons. The stakes were seemingly irresistible. It would assure them, if they could control the French source, a supply for 110 years, whereas their own supply, although actually richer in iron, would last them but 40 years. Taking into consideration what they might expect to receive in years to come from Spain, Sweden and Russia they might have held out for 60 or 70 years. A bird within gun shot was manifestly better than a bird out of range across the seas so Germany sighted her guns and fired; with what result the world now knows.

It is easy to comprehend the valuation which Germany put upon the French Lorraine deposits which ran to 33 per cent of virgin iron. Even after having crushed Russia she held tenaciously to the Briey region.

As those in France view affairs, President Wilson's voice is the only clear voice that is heard in the concert of nations. Germany must not be allowed to prepare for another war nor even be allowed to continue her defense along lines which are superior in the mechanics of war to those of the allies. Largely it is the United States that can thwart this. The results of America's attitude are already beginning to tell, and they must continue, until, as Samuel Gompers said in a recent banquet speech in Paris: "A war that was begun by the sword must be ended by the sword." That is why in the elation of victories on all the fronts, the debacle of Bulgaria and the tottering of Turkey and Austria there is not a moment of respite to be had until the mechanics of war as professed by Germany are downed by the superior mechanics of the allies. It is for this that the part played by iron and steel is the greatest role in this great drama. Even France is beginning to see it, and to look for that help from America which can come from nowhere else. That American genius in what the French call the "mechanism of life", and of war, is superior to that of any other land there is no doubt. There is but one word to add: Let those of the rear hold their part of the line as are the *poilus* in khaki and horizon-blue.



THE PRESSED STEEL WHEELS ARE TRANSFERRED FROM THE PLUNGER PRESS AND PILED ON SKIDS BY HUGE TONGS.

MACHINE SHOP WHICH IS EQUIPPED WITH BORING, TURNING AND FACING MACHINE TOOLS FOR PRESSED STEEL WHEELS.

Making Rolled Steel Car Wheels--II

Massive Bed Plates and Housings Support the Wheel Mill—Wheel Blanks Are Rolled by the Rotation of Dies Under Tremendous Pressure—Double-Flanged Wheels Rolled on Tread Mill

BY GEORGE E. THACKRAY

THE first Slick rotary shear, wheelmill, and plant, was installed a few years ago at the works of the Carnegie Steel Co., Homestead, Pa. Later the Schoen wheel plant of the Carnegie Steel Co., McKees Rocks, Pa., was changed from the slab process, for which it was first constructed and operated, to the Slick process, using cylindrical blanks. Recently a complete wheel plant of his design was installed at the works of the Cambria Steel Co., Johnstown, Pa. This mill embodies certain improvements and details as compared with the first ones which he built at Homestead and McKees Rocks, Pa. The plant and process makes it possible to produce wheels of all kinds and in addition many annular shapes which were never rolled before.

The Cambria Steel Co., one of the component parts of the Midvale Steel & Ordnance Co., also operates a mill which was moved from Nicetown, near Philadelphia, and which makes car wheels by first forging a cylindrical blank in large hydraulic power presses and then rolls the web and tread in a rolling mill of the older type.

The author, George E. Thackray, is special engineer for the Cambria Steel Co., Johnstown, Pa.

A condensed list of the products of the Slick wheel plant at Johnstown, Pa., is as follows: Automobile flywheel blanks; band wheel flange blanks; bevel roller blanks; bevel and spur gear blanks; gear rim blanks; mill and railway motor gear blanks; piston, pipe flange, shaft coupling and submarine signal blanks; wheels for freight and passenger cars, engine and tender trucks made to Master Car Builders standard dimensions, 28 to 38 inches diameter; for electric, street and interurban cars, made to American Electric Railway association standard dimensions, 21 to 38 inches diameter; for elevated and subway cars, made to special dimensions, 31¼ and 34¼ inches diameter; mine locomotive and mine car wheels; cinder car, ore car and other industrial car wheels; double flanged crane wheel blanks; and, cylindrical wheel blanks.

The wheel mill in general consists of large and massive bed plates and housings which are approximately 40 feet long, including a large steel casting. At one end of this casting is formed, integrally, the pressure cylinder which contains a hydraulic pressure plunger 38 inches in diameter, with a tail rod about 18 inches in diameter. The cylinder housing is a steel casting approximately 18 feet wide, 14 feet high and weighs over 50 tons. It was made in the Cambria Steel Co.'s shops. The sides and ends of the wheel-mill frame are large steel castings the thrust being taken up by large tie bolts each 13 inches in diameter. They extend through the frames from end to end and are fitted with large spanner nuts as shown. The side frames are provided with guides on which slides a cross-head carrying one of the rotating dies at its forward end.

This die is mounted on the end of a hollow die-holder shaft. The latter is provided with collars which rotate within the cross-head when subjected to the tremendous pressure from the pressure plunger. The pressure is resisted by large roller thrust bearings, which are about 4 feet 8½ inches in diameter. The pressure plunger which projects one of the dies forward, is 38 inches in diameter. Pressure is supplied from a series of pressure pumps and intensifiers at 3000 pounds or more per square inch, thus providing a total pressure of more than 3,000,000 pounds for making the larger sizes and lesser amounts for making the smaller sizes of wheels. The pressure pump equipment is shown in Fig. 10. The companion die at the other end of the press is rigidly secured to the frame and is fitted with similar roller thrust bearings. It is rotated by an alternating-current motor at a speed of about 100 revolutions per minute. The motor has a capacity of 1000 to 2000 horsepower, depending upon the amount of work to be done. The wheel mill including the motor drive is approximately 70 feet long, 18 feet wide and 14 feet high. The mill without the driving equipment weighs 400 tons. The mill is equipped with a pair of angularly disposed rotating dies which are subjected to hydraulic pressure to force them together. The axes of the dies are arranged at such

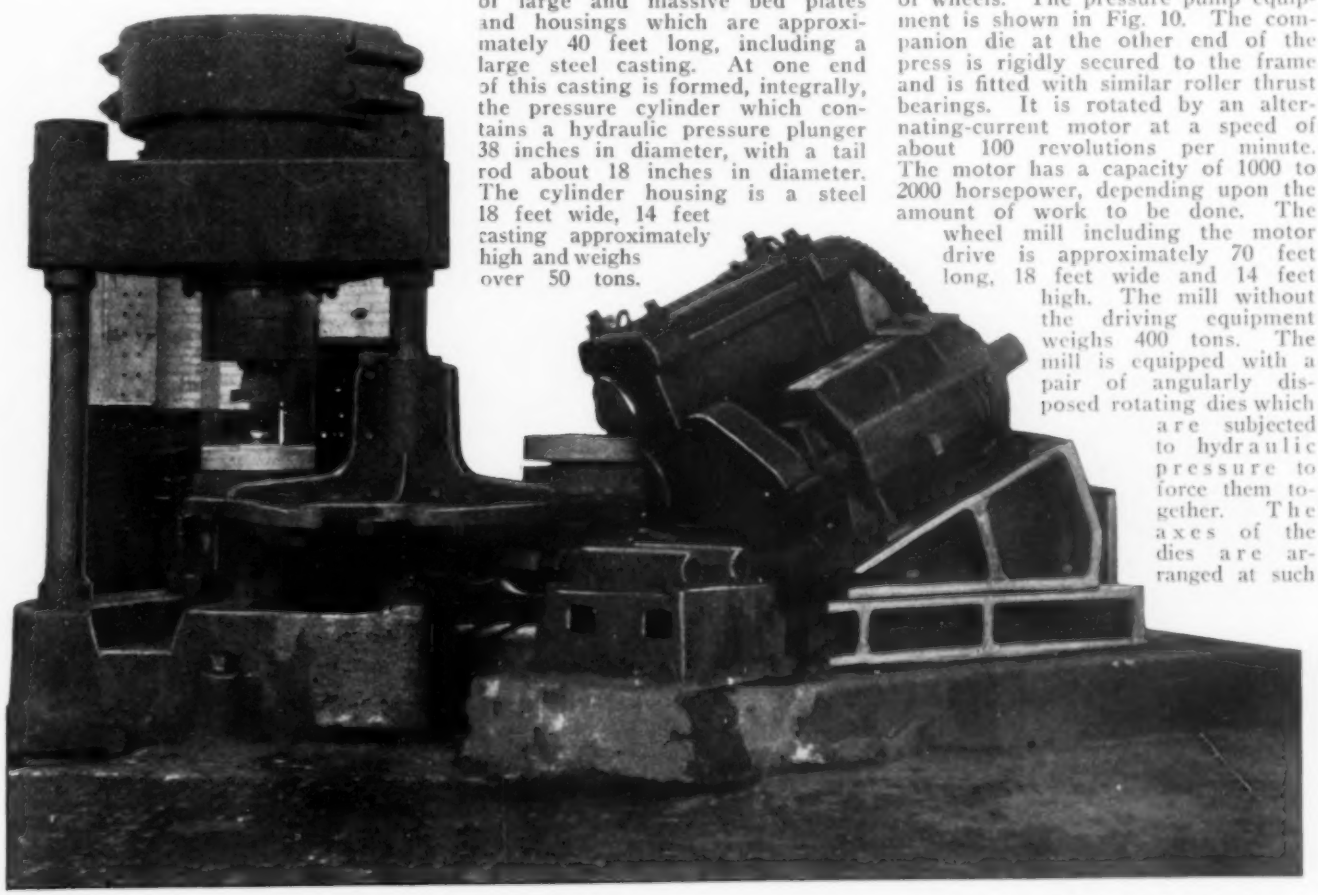


FIG. 9—ROTARY SHEAR AT RIGHT REMOVES THE FIN FROM THE WHEEL. PLUNGER PRESS AT LEFT PUNCHES OUT THE MANDREL

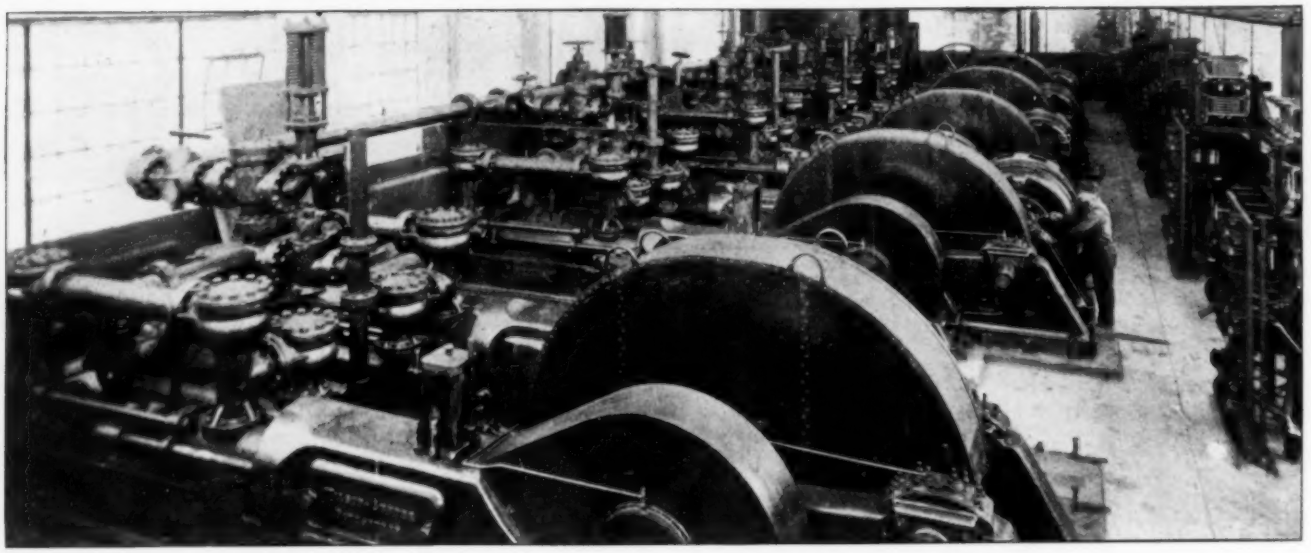


FIG. 10—HYDRAULIC EQUIPMENT FOR OPERATING WHEEL MILL AND COMPONENT UNITS

an angle that the wheel or blank is rolled by the rotation of the dies under tremendous pressure. In order to limit the movement of one die with respect to the other, the tail rod of the pressure plunger is provided with a large nut and keeper, which makes contact with the end of the cylinder head in such a way as to stop its forward movement at any desired point. One of the features of the arrangement is that the axes of the dies and their shafts and the axes of the large tie rods are all in the same horizontal plane, thus equalizing the stresses which take place when rolling, and preventing any undue deformation of the machine when subjected to the tremendous pressures.

One die is rotated by an electric motor, while the other die is connected to and fed forward by the large plunger. Thus, both dies and the blank are rotated at the same speed during the operation. The mill is also equipped with pull-back cylinders which operate under a constant pressure of 500 pounds per square inch. After the pressure of the large plunger is relieved by opening the control valve, the pressure water is exhausted from the pressure cylinder and the die is in an open position.

After the pressure die is retracted and a mandrel inserted, a hydraulic-

FIG. 11—CAR WHEEL CENTER WITHOUT TIRE

ally operated jaw lowers the blank into the die, the mandrel being in the central perforation. The pressure die is then projected forward by means of hydraulic pressure which acts upon the large plunger. The other die is rotated by means of an electric motor. The friction between the blank and the dies cause the latter to rotate together, and on account of their angular relation the blank will be both rotated and rolled to accurately conform to the shape of the dies. The small quantity of excess metal which is provided in the blank, rolls outwardly on the circumferential edge in the shape of a fin and is sheared off in the shearing machine. After the rolling is completed, the pressure die is retracted and the finished wheel containing the mandrel is removed.

This partly finished product is then placed in position on the fin-shearing and mandrel-punching machine shown in Fig. 9. After the fin is removed by means of the rotary shear the table which supports the wheel is rotated until the wheel is brought under the plunger press where the mandrel is punched out. The wheel is then transferred by means of electrically operated tongs shown on page 1066. At the bottom of the same page is a general view of the machine shop which is equipped with a large num-

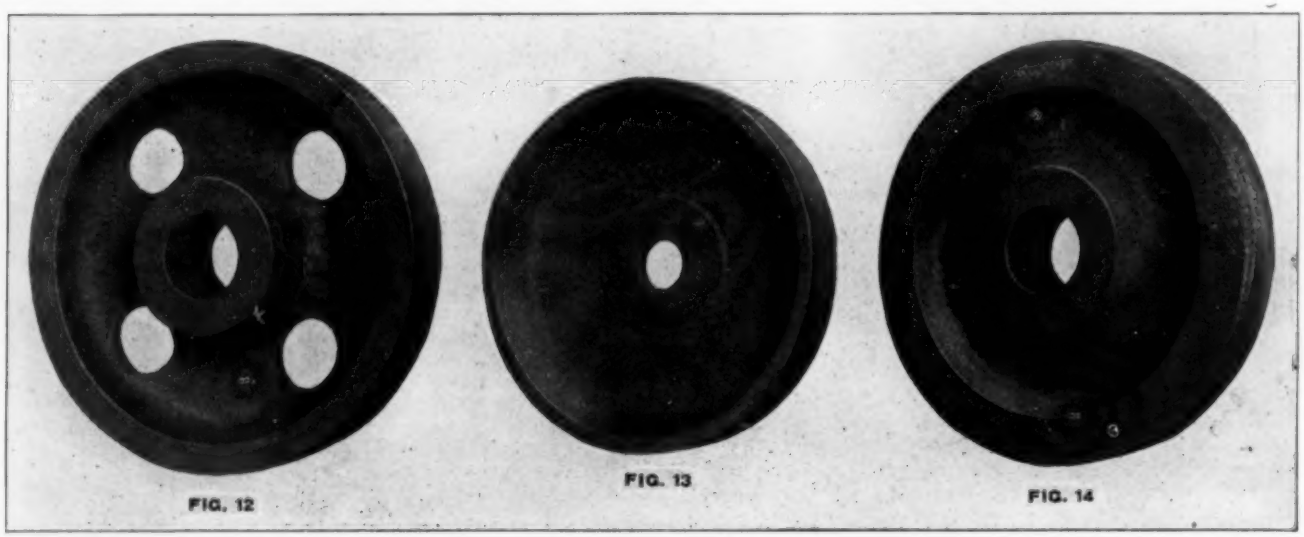


FIG. 12—GEAR BLANK 24 INCHES DIAMETER. FIG. 13—AUTOMOBILE FLY WHEEL, 17¾ INCHES DIAMETER. FIG. 14.—ROLLED DOUBLE-FLANGED 24-INCH WHEEL.

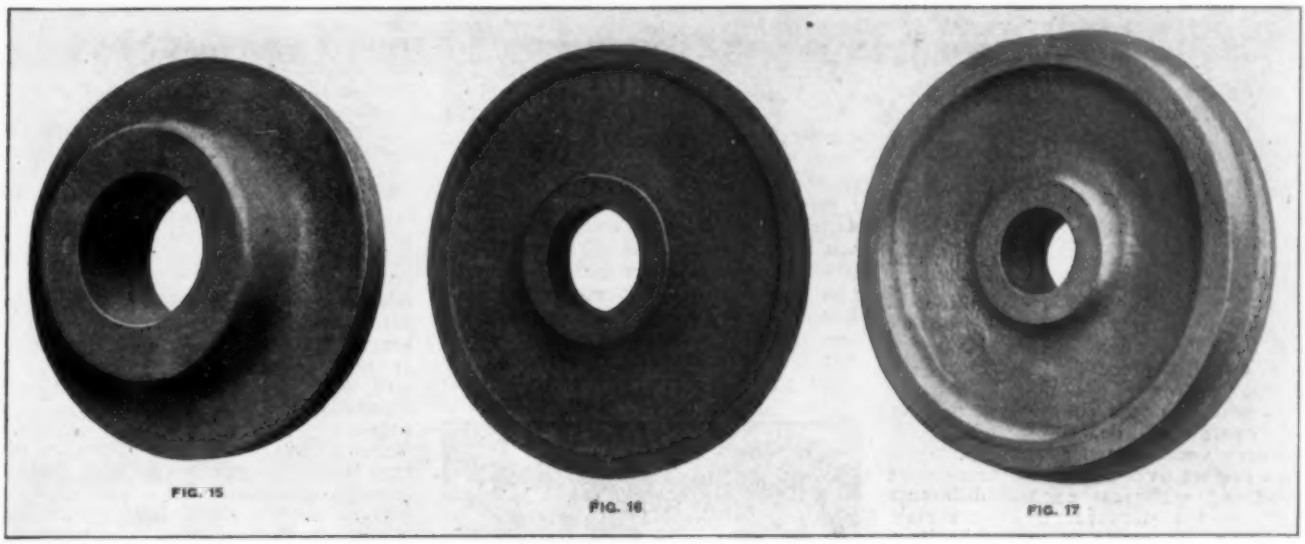


FIG. 15 FIG. 16 FIG. 17

FIG. 15—SHAFT COUPLING, 24 INCHES DIAMETER. FIG. 16—TURBINE BUCKET WHEEL AS ROLLED. FIG. 17—STANDARD 3-INCH RAILWAY FREIGHT CAR WHEEL

ber of machine tools adapted to bore, turn and face the wheels. Power for operating all the hydraulic apparatus of the plant is obtained from pressure pumps shown in Fig. 10.

The double flanged crane wheel shown in Fig. 14 is first rolled with a flat tread and then introduced into another special tread rolling mill designed by Mr. Slick in which the tread and the two flanges are formed. Heretofore, wheels of this kind had their treads machined from a rough blank but now the tread and flanges are rolled, thus producing a product without any waste of material or unnecessary machining and labor. The different products of the wheel plant of the Cambria Steel Co. are shown in Figs. 11 to 21.

Repairing a Crankshaft

The crankshaft of a 500-horsepower diesel engine in use in a Victorian industrial factory was broken in two pieces about ten months ago. A few days after the breakage an offer was made by a firm in Victoria, Australia, to repair the shaft, according to James Ahern, in the *Commonwealth Engineer*. This offer was at the first looked on askance by the owners of the engine

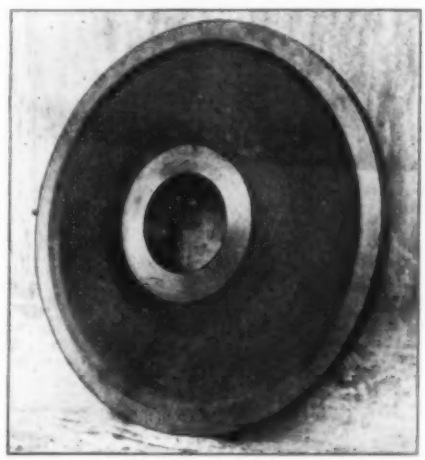


FIG. 18—FINISHED TURBINE BUCKET WHEEL

but as they were unsuccessful in their efforts to get a new shaft forged and machined in Victoria, and met with no better results in the other states, they ultimately decided to have the shaft repaired by the firm mentioned. The shaft was a solid-forged double-throw one weighing three tons, and the break was at one of the webs.

It was decided to shrink a heavy band around the broken web, and to neglect the out-of-balance effect due to the increased weight of the band. Careful measurements were taken of the crank chamber, to assure ultimate clearance and the maximum thickness of the band was decided upon. The fracture was 80 square inches in area. All signs of distortion or bruising were removed with a fine-pointed chisel. After laying the two broken pieces together and clamping them tightly with a 2½-inch bolt on either side of the web, the whole shaft was run in a lathe and tested for straightness. As was expected, the center bearing was considerably out of true, but by solidly blocking up the broken web and pounding the fracture together the shaft was gradually brought to its original position. The pounding operation had to be repeated several times, an old piece of 6-inch shafting, which was ele-

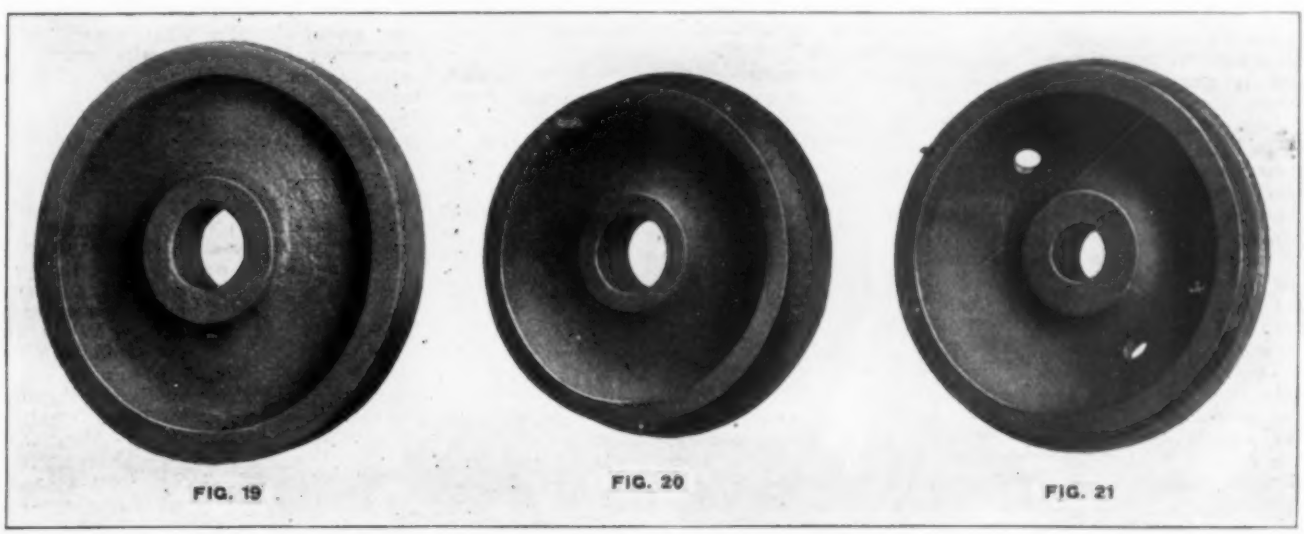


FIG. 19 FIG. 20 FIG. 21

FIG. 19—GEAR BLANK 23 7/10 INCHES DIAMETER. FIG. 20—INDUSTRIAL WHEEL 20 INCHES DIAMETER. FIG. 21—STREET CAR WHEEL 21 INCHES DIAMETER

vated by a crane and then let fall, being used as a monkey weight.

After the fracture was seated together, the clamps were removed, and a test-piece was sawed from a corner of the broken web. Both ends of the broken web were then slotted down to semicircles, the shaft, one-half at a time, being bolted on to the table of a boring mill. The power feed was used to travel the table to and fro, and at each stroke the head of the machine was turned sufficiently to keep a good cut on. The band, which was a mild-steel forging, was next prepared by boring out both ends in a lathe and slotting the straight piece left between the bores.

It will be noted that in the method of operations described, all sharp corners were dispensed with, and the two perfect oval machined pieces were produced with just enough difference between the sizes for a close shrink. It being impossible to reeve the band over the shaft from either end, the shaft was carefully laid out on blocks and then one-half moved a short distance away. The heated band was then dropped over the broken web and laid over the bearing next to it. The removed piece was then put back into position and the band finally placed over it and left to cool off. Careful tests in a lathe afterwards showed the error at the center bearing to be but 0.008 inch. Arrangements had been made to regrind the bearings, but the error being so small, this was considered unnecessary.

As a final provision against damage being done should the band become loose, six 1¼-inch screws were tapped and riveted through it, one-half of each screw being in the web and the other half in the band.

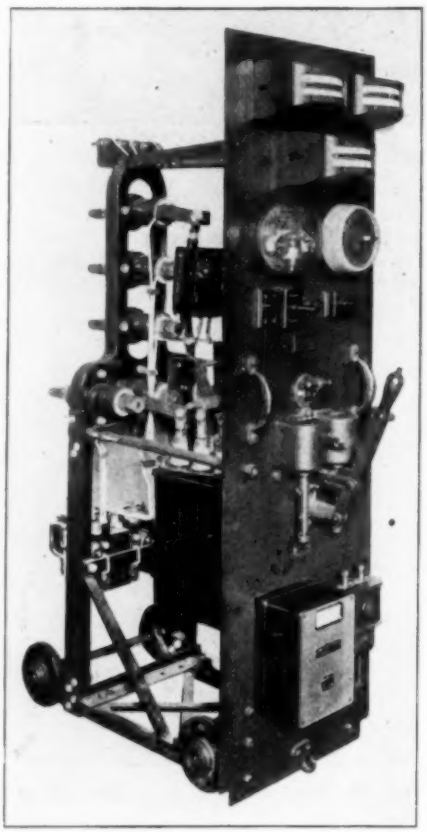
The repaired shaft has now been running continuously for 10 months. So far no sign of movement has taken place, and no heating has been noticeable and the out-of-balance effect is negligible. In fact, the engine is running equally as well as when the shaft was new.

Safety Switchboard Units

A removable truck-type, safety-first switchboard unit shown in the accompanying illustration, and recently brought out by the General Electric Co., Schenectady, N. Y., is adapted for use in electric power plants. It is made for the control of generator, motor and feeder circuits, and is particularly adapted to plants where electrical distribution to various buildings is made from economically located distribution centers. The construction is such that extensions can be readily made. All live parts are enclosed, which practically eliminates danger. A spare removable unit can be used to reduce the time of shut down for inspection or repairs. Busbars need not be killed, disconnecting switches need not be opened and leads and small wiring are not disturbed.

The stationary member of the removable truck switchboard carries current and potential busses with its disconnecting switch studs and barriers between the current studs. This prevents accidental contact by anyone who enters the compartment. The potential buswires run to small contact studs near the top of the compartment. The side walls are provided with hand holes, so that busbars and buswires can be continued from unit to unit.

The truck is mounted on wheels. The fore part carries a sheet steel panel on which is mounted the instruments. The current transformers are mounted on steel brackets back of the instrument panel. The rear of the truck carries the removable parts of the disconnecting switches, the potential transformers and small wire accessories. To center the truck and to assist in placing it in or removing it from a compartment, rails fastened to the sides of the compartment are furnished. The oil switches, instruments, meters, transformers and all adjunct parts are removed entirely from



TRUCK-TYPE SWITCHBOARD UNIT INSURES SAFETY.

the installation by wheeling out the truck.

To remove or replace a switch unit, the oil switch must be open and therefore the load disconnected. This is provided for by an interlock attached to the oil-switch operating toggle, which engages cast lugs on the walls of the stationary unit. With the oil switch closed it is impossible to remove or insert the truck. This panel is made in a variety of styles and capacities up to and including 1200 amperes and to operate at voltages up to 15,000.

Blow in Texas Stack

A new industrial era in the state of Texas will be marked by the opening with a short time of the Rusk Furnace & Pipe Foundry at Rusk, Tex., which has been idle for about six years. The Texas Steel Co., Beaumont, Tex., under the leadership of L. P. Featherstone, pioneer steel man and railroad builder in Texas, purchased the property from the state. Workmen are now completing the overhauling and repairing of the plant.

Company officials had planned the opening of the furnaces some time ago, but due to delay in getting supplies, and the shortage of fuel, the blowing in of the furnaces had to be postponed. The company somewhat relieved the fuel shortage by developing its own coal mines at Warrier, Ala., the supply from which will insure a sufficient amount of coke to keep the furnace going to capacity. It is expected the Texas Steel Co. will supply the greater part of the demand for pig iron in Texas. At present in that state there is a demand for 75,000 tons of foundry pig iron annually and more than 140,000 tons of cast-iron pipe. The demand for cotton ties alone calls for several thousand tons a year. In order to establish connections between the plant and the ore fields, the Port Bolivar Iron Ore railroad was built at a cost of $1,000,000, furnishing a one-line haul from the ore fields and furnace to deep water at Beaumont, where the company's steel mill is located. In order to insure a permanent supply of fuel, the company will operate its own coal mines and coke ovens.

Steel Distribution Folder

Joseph T. Ryerson & Son, Chicago, have issued an instructive folder on steel distribution as it pertains to warehouses. The essential features of the priority system are set forth and in this connection it is stated: "As the purpose of automatic classification and priority certificates is to fix the relative importance of an order and secure proportionately prompt delivery; and the nature of warehouse business, shipment from stock, indicates priorities are not required, it is evident that automatic classification and priority certificates are for use in connection with orders to mills, producers and manufacturers only and do not apply to jobbers or warehouses." The procedure for obtaining material for war and non-war purposes is described, and in conclusion all consumers are urged to apply the acid test before asking for material: "To what extent is it necessary for winning the war?" A plea is made for the suppression of selfish desires as a step toward victory no less important than the actual production of war materials.

A company is now being formed at Pekin, China, with a view of developing the iron ore mines in the region of Hsuanwafu, between Pekin and Kaglan, China. Part of the capital of the company is being subscribed by the Chinese government and part by individuals. When the company has obtained sufficient financial backing, modern mining equipment of all kinds will be installed in the region and a large smelting plant will be erected.

The Wayne Steel Co., with a capital of $2,000,000, has acquired six acres in Erie, Pa., and will erect a modern open-hearth steel plant.

Effect of Air Tools on Workmen

Investigation Discloses That Pneumatic Tools Do Not Bring About Any Serious Ailment to Those Who Use Them—Cold Weather Found to be the Principal Cause of the So-Called "White Finger"

BY FRANCIS M. BARNES JR., M. D.

THE introduction of mechanical tools into the trades has been accompanied by numerous actual and claimed damages to their operators and also a more or less direct cause of the occurrence of new and particular diseases or the factor predisposing to the incitement of ordinary diseases in greater prevalence. Among such mechanical tools the pneumatic hammer, in comparatively recent years, has come to occupy a most important position in several lines, notably in shipbuilding and in the steel and stone industries.

Within the past two years complaints of ill effects from the use of the hammer have become prevalent although these do not seem to have originated so much with the individual user of the hammer as with labor organizations of which he is a member. It has been claimed that the use of the hammer produced in the men a diseased condition affecting the nervous system and leading even to paralysis, insanity or other form of complete incapacitation.

In view of the fact that in current medical literature no mention of such diseased condition from this causation could be found it became necessary to carry out an investigation to determine, if possible, whether such disease actually did exist, its extent and seriousness, and, if necessary, to study measures whereby its occurrence could be minimized or entirely done away with. Such a study is obviously of importance, not only to the workman, but to the operator whose interests are more broadly involved.

Recent investigations have been carried out in parts of the country where the pneumatic hammer is used in shipbuilding and in the steel industry. From reports of such investigations as are available it was not found, in any instance, that the use of the pneumatic hammer produced any deleterious effect upon the general health of the workers.

So far as this study is concerned the men using pneumatic hammers on limestone were found to be in good general health and none of the group examined showing any constitutional disease; their troubles (supposedly arising from use of the hammer) being limited to a disturbance of the function of the left hand—commonly known as "white fingers" or "dead fingers." As a general thing this condition occurs shortly after the men first go to work in the morning, or until they have "warmed up," although it also occurs during cold weather when the hands are exposed otherwise than in working.

First the little finger and ulnar side of the left hand (in right-handed men) become pale and blanched; the same area soon giving rise to tingling or numbing sensations, sometimes even to slight pain. The ring finger and part of the middle finger may also be involved in this process. By swinging the arms or rubbing the hands the condition may be made to disappear and when the hands are warmed the pallor rapidly gives place to diffuse flushing and reddening. The index finger and thumb of the right hand are occasionally affected, particularly in those workers who improperly control the exhaust by their finger or thumb.

So far as could be determined this condition of the hands constitutes the sole trouble from which the stone workers complain in so far as the pneumatic hammer is concerned. In all of the workers examined the hands were somewhat reddened and flushed, but not more than reasonably might be expected in the hands of outdoor workers. The hands were calloused to a varying degree in different subjects, but in all quite extensively. The palm and certain of the fingers of the left hand were more calloused than on the right. There was no actual cyanosis, excepting in one subject, where this was slight. No swelling, no tenderness, no pain, no edema and no involvement of the muscles or joints. Paresthesia was absent excepting in one subject, who reported some numbness in his "white fingers." This was the only subject to show the condition well developed. Sensation for all tests was acute and practically normal. In most subjects there was a lowering of acuteness of feeling—some blunting or dulling—but this certainly was no greater than could be expected in hands where so much callous was present. In all but one subject the callous was sufficient explanation for any variation from the normal which could be observed in sensation. In this one subject the sensory disorder passed off in a few minutes or as soon as the hands became warm. Mental disease was not present in any subject examined, nor was there any physical disease which could in any way be attributed to the occupation.

Such disorders of the extremities indicate very clearly that a disturbance of the peripheral circulation of the blood is responsible for their occurrence. The calibre of the peripheral blood vessels, and therefore the amount of blood supplied to the part, is dependent in large measure upon the action of the nerves which supply these blood vessels, known as vasomotor nerves. Low temperatures stimulate the sensory nerve fibers in the skin and the nerve impulses thus aroused reflexly stimulate the vasoconstrictor center, or a part of it, and cause blanching of the skin. That cold may produce evident changes in the appearance of certain parts of the body, notably of the extremities—the feet, hands, ears and nose—is a matter of common observation.

It has been pointed out that exposure of the hands to cold usually produces at first a pallor of the skin which is evidently due to a constriction of the cutaneous arterioles. When the exposure is prolonged, however, the color is heightened and the skin usually becomes more or less cyanotic. Almost universally, therefore, cold produces a constriction of the cutaneous arterioles and a slow flow of blood through the skin. The variations in color are thus caused by the varying amounts of blood that collect in the skin capillaries. The flow through the blood vessels is also in part influenced by the muscles which surround them. Anything, therefore, which interferes with or impedes the normal action of the muscles will have its effect in turn upon the circulation, as it is the changing state of contraction and relaxation of the muscles which aids in the flow of blood under normal conditions. Where a group of muscles is held in a contracted state for a considerable length of time the circulation is thereby impeded.

With the workman, whether using a chisel and mallet or a pneumatic hammer, the factors of cold, continued muscle contraction and cutane-

Investigation in a New Field

PNEUMATIC tools occasionally are held responsible for various ailments of a somewhat indefinite nature. Thoroughly to investigate this question, the author of this paper made an exhaustive study of the effect of the use of pneumatic tools on the nervous system and he draws some interesting conclusions. His investigations failed to show any trace of Raynaud's disease, acroparesthesia, neuritis or occupational neurosis.

It was disclosed that the use of pneumatic tools in cold weather may cause "white" or "dead" fingers, and to overcome this condition the author recommends that some method be devised to warm the cutting tool in cold weather and to enlarge the shank so that the worker can grip it without causing finger cramp. He also urges that the practice of blocking the exhaust outlet and thereby forcing a current of cold air over the fingers of the left hand be discontinued.

Abstracted from a paper presented at the seventh annual safety congress of the National Safety Council held at St. Louis, Sept. 18-19.

ous irritation are all present to a considerable degree and demand due evaluation in the consideration of such disorders in the hands as are sometimes observed. The fact, borne out with uniformity in this investigation, that the trouble occurs only in cold weather indicates most conclusively that the low temperature itself is one of the most important factors in the causation. The continued muscular contraction and the mechanical irritation (vibration) may play a role in its causation, but evidently these are of secondary importance.

The fact that the trouble, when present, pre-eminently affects the left hand, which holds the chisel and not the hammer, indicates clearly that other factors than the hammer itself are of more signal importance in its causation. The cramped position of the chisel hand with the more or less continuously maintained contraction of the muscles is one of these important factors. However, the hammer or the grip of the chisel, either alone or combined, are not sufficient to produce the condition, as is proved by the fact that it does not occur in the warmer seasons of the year when industry is at its height. The role of the vibration is uncertain, but as the trouble occurs in the hand not holding the hammer, it is doubtful if its importance is very great. We have left, therefore, the factor of low temperature which seems to be the final and most important element in the production of those vascular changes seen in the hands of some workers which, although physiological in nature, form the pathological basis for the occurrence of "white fingers" and "dead fingers." So far as can be ascertained the condition leads to no permanent disability and results in no organic disease. Why it is that only a portion of stone cutters are affected cannot be answered. Whether certain undetermined conditions of poor general health or specific diseased condition existing, but not recognized, predisposes certain men to this disturbance is not evident from this investigation, although apparently such is not the case. With one or two exceptions they were all well developed, robust men without demonstrable general physical or mental disease.

Draws Interesting Conclusions

Conclusions drawn from a comparatively small series of observations must be subject to some limitations. However, the uniformity of the results of the examinations made in this investigation, taken together with the testimony of the workmen and of others, reasonably justifies the following deductions:

1. Structural steel workers, shipbuilders and stone cutters as a class, enjoy good general health and are not, because of their trade, especially susceptible to any particular disease.

2. Stone cutters are liable to a disorder affecting the hands, especially the left hand.

3. This disorder of the hands is of a vascular character, not due to organic changes in the circulatory system, but dependent upon vasomotor reactions.

4. These reactions are physiological in character and are occasioned by three factors incident to the work of stone cutting: Mechanical irritation of the skin, continued muscular contraction of a cramping nature and low temperature.

5. Of these three factors, cold is considered the most important because the condition only occurs during the severely cold weather and never in the summer, and warmth and measures to restore the circulation (rubbing, swinging the arms and the like) cause its disappearance.

6. It cannot be caused by the effect of the air hammer alone because it occurs in those who have not used the air hammer. It does not occur in warm weather when industry is at its height and, therefore, when the air hammer is most in use. It occurs mostly in the left hand and not in the right hand in which the hammer is held.

7. The vasomotor disorder is of temporary duration and is not known to have resulted in permanent disability of the hand, nor itself to have been the cause of development of any other local or constitutional disease.

8. It is possible that once having occurred the person is rendered more susceptible to its reappearance, just as is the one who had had his ears or fingers frostbitten by the cold.

9. There is no sufficient reason in the signs and symptoms presented in this disorder to conclude that one has to do with Raynaud's disease, acroparesthesia, neuritis or an occupational neurosis.

10. The institution of measures to warm the chisel before and while using, enlarging the shank of the chisel and covering it to make it possible to hold without so cramping a grip, the wearing of gloves, and the discontinuance of the prevalent custom of blocking the exhaust outlet, and thus forcing a draft of chilled air out along the chisel and onto the fingers of the left hand would do much toward the prevention of this trouble.

How Navy Builds Huge Railway Batteries

PRESS dispatches from France detailing the destruction wrought back of the German lines by huge naval guns operating with the French and American forces make it possible now to disclose some particulars of these guns and how they were built, which has been a jealously guarded secret. The guns throw a heavier projectile and have a greater muzzle velocity than any previously placed on a mobile shore mounting.

The guns were originally intended for the new battle cruisers but a change in the design of the cruisers left the guns available for other use. From the first it was seen that in order to make the project successful the railway battery must be made completely mobile, so that it might operate without being based at any one particular spot. For this reason it was necessary to provide not only the railway cars mounting the guns, but also locomotives and cars sufficient to accommodate all the operating personnel of the expedition, together with the ammunition, repair shops, cranes, stores and miscellaneous material.

The plans and specifications for the mounts were prepared at the naval gun factory, Washington, in less than 30 working days, being ready for submission to the bidders about Jan. 25, 1918. Large mounts were to be built, capable of taking these big calibre guns, each mount with its accessories to be operated as an independent train. The equipment included locomotives, gun cars, ammunition cars, crane cars, construction, sand, timber, berthing and kitchen, fuel, workshop, and staff radio cars, cars for officers, battery headquarters and miscellaneous purpose cars. The locomotives built for this purpose were of the standard consolidation type with four pairs of drivers. The weight of the engine alone is approximately 83 tons and the weight of the tender approximately 56 tons.

A form of pit foundation is provided in the cars to enable the guns to be fired at high angles of elevation. The removal of the gun from over the pit formation and its restoration to complete mobility is but the work of a few minutes. The entire mount is covered with armor plate, 1600 square feet of plate being required. When the first gun car was completed last April gun and mount were put through the severest tests and showed accurate fire at much further ranges than had ever before been possible with such projectiles.

The car equipment is unusually complete. One car is a complete machine shop, with every facility for repairs, with blacksmith forge and anvil, lathes, shapers, grinders and drill presses. Ammunition cars are heavily armor plated. The kitchen cars have complete cooking and serving apparatus; the sleeping cars have folding bunks for the men, and other cars carry complete sets of spare parts.

Every effort was made to secure rapid construction, work being begun the day the contracts were awarded. The Baldwin Locomotive Co., built the engines and the Standard Steel Car Co., the box cars. The huge steel girders were fabricated by the American Bridge Co., some of the plates being so large they could not be produced at its Pencoyd works and had to be manufactured in Pittsburgh. Work at all these plants proceeded night and day and the material and completed mounts and cars were produced in record time. Many of the important parts of the gun mounts were made at the naval gun factory which worked under forced draft and had its part of the work done ahead of schedule, as did the other builders.

Selecting Crane Motors and Gears

How Requirements and Limitations of Bridge Motors for Overhead Traveling Cranes May Be Determined—Rate of Acceleration as Important as Speed in Deciding on Size

BY R. H. McLAIN

THE purpose of this paper is to set forth rules for selecting the proper size of motor and the gear ratio for bridge motion of overhead traveling cranes. The work done by the bridge motor consists of three parts: Overcoming track resistance and journal friction, called rolling friction; accelerating the crane with load and accelerating the motor armature and brake wheel. The first and second classes of work are done through a train of gears and involve gear losses. In the majority of busy cranes rolling friction is a small part of the total work and acceleration is the main work. Usually a draw-bar pull of from 20 to 30 pounds per ton will move a well made crane along a good level track. A new stiff crane or a poor track may require 50 or 60 pounds per ton. Acceleration of the crane and armature may require from 50 to 300 pounds per ton draw-bar pull, depending on circumstances.

There are four factors which tend to limit the rate of acceleration of a bridge motor: Automatic magnetic control can absolutely limit it; slipping of wheels can practically limit it; swinging of load can limit it in some cases, and the comfort of the operator may limit it.

Motor Size Important

When automatic magnetic control is used the current-limit devices may be set to a value just sufficient to start the crane under the severest working conditions and if the current is within the working limits of the motor no trouble need be expected. Of course trouble can arise if the controller fails to function properly or if the operator speeds up the crane by setting the relays for higher current. To guard against this difficulty it is necessary to select a motor large enough to make all the speed actually needed. An average acceleration of something like 1 to 1½ feet per second per second will be fast enough for cranes which travel at less than 500 feet per minute or make infrequent starts. Cranes which make frequent trips of 50 or 60 feet every minute or so may need an average acceleration of 2 to 2½ feet per second per second. Cranes which do "stunts" with swinging loads may need 3 feet per second per second peak acceleration.

When a motor is powerful enough to slip the wheels under full load without exceeding the working limits of the motor there is no danger of overload. Simple calculation shows that if one-fourth of the wheels are driven and if these wheels carry one-fourth of the total weight, an acceleration peak of 2 feet per second per second will just about slip the wheels. Of course, the average acceleration will be less than the peak and will depend on the number of controller steps; it may be about 1.5 feet per second per second.

Where it is possible for a crane to do its work with only one-fourth of the wheels driven this drive makes a practical way of protecting the motor, but where one-half of the wheels must be driven the motor is not so protected from overload. The swinging of the load in some cases will have a great deal to do with the rate of acceleration.

It is interesting to note that when the load is hung from the crane by a flexible rope the motor does not have to start the load as soon as the crane starts. At the instant of starting the motor has to overcome the rolling friction incurred by the weight of the crane and load, and it has to accelerate the crane and armature. As the crane moves away from the load, the load begins to accelerate at a rate far below that of the crane and finally when the crane has moved far enough away from the load the load is accelerated as rapidly as the crane.

Where manual control is used, rough material is handled and one-half of the wheels are driven the discomfort of the operator is the only other factor which limits the strain which may be put on the motor due to quick starting.

The following calculations will serve to aid in determining the proper size of motor and the gearing for bridge motion.

C = Weight of crane in pounds.
L = Weight of suspendeed load in pounds.
N = Revolutions of motor armature which corresponds to one foot travel of the bridge along the track.
W = The effective weight of the armature and brake wheel plus an allowance of 5 per cent for gears expressed in pounds at one foot radius on the armature shaft, i. e. the flywheel effect.
P = Maximum torque in pounds at one foot radius exerted by the armature as determined by reading amperes for the one condition which is being tested, and referred to manufacturer's torque-ampere curve.
F = Torque as above exerted when motor is fully accelerated and is overcoming rolling friction only.
$e = \frac{\text{Efficiency of gearing expressed in percent.}}{100}$

To find the rate of acceleration on

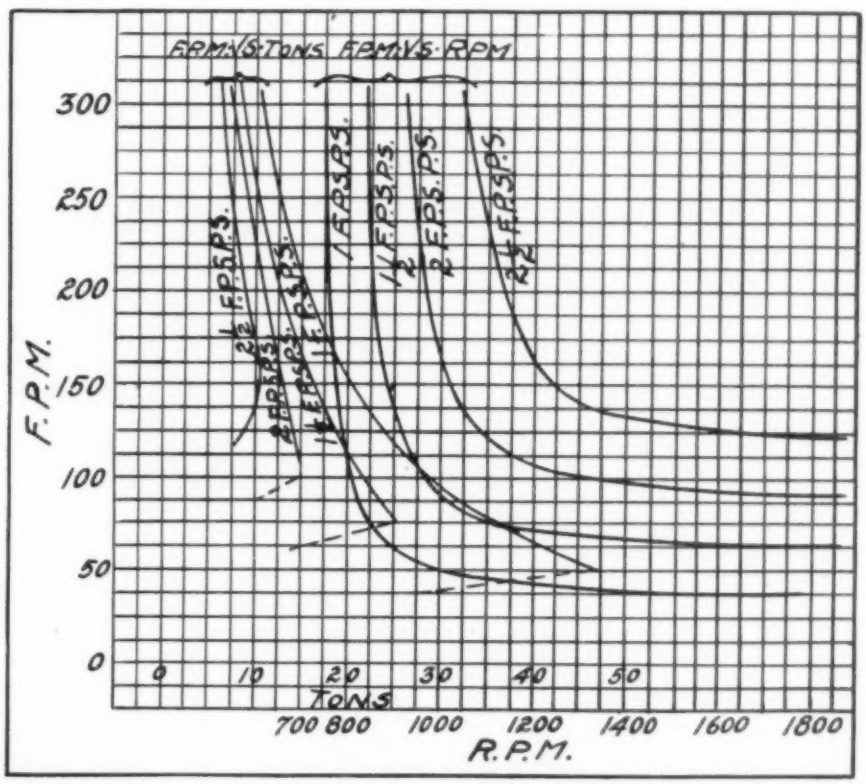


FIG. 1—DIAGRAM SHOWING WHAT A MOTOR MAY DO UNDER VARIOUS LOADS, SPEED AND RATES OF ACCELERATION

From a paper presented at the twelfth annual convention of the Association of Iron & Steel Electrical Engineers, Baltimore, Md., Sept. 11-14. The author, R. H. McLain, is an electrical engineer associated with the General Electric Co., Schenectady, N. Y.

crane without load use the formula:

Rate of acceleration in feet per second per second

$$= 32.2 \frac{P-F}{\frac{C}{2+Ne} + 2 + NW} \quad (1)$$

To find rate of acceleration on crane with load rigidly attached to crane, or with load swung behind crane at such an angle that the two accelerate at the same speed:

Rate of acceleration in feet per second per second

$$= 32.2 \frac{P-F}{\frac{C+L}{2+Ne} + 2 + NW} \quad (2)$$

To find first instantaneous rate of acceleration on crane bridge when load is swung by flexible rope or chain vertically below the bridge so that bridge starts to move before the load starts:

Substitute the values of P and F as used in equation No. 2 in equation No. 1 and obtain instantaneous rate of acceleration in feet per second per second. The rate is maintained only long enough for the bridge to move away from the load. Then the rate reduces gradually to equation No. 2.

Rate of Acceleration Important

The rate of acceleration is as important as the final speed of the crane in determining the size of the motor for a crane. To show what a motor may do under various loads, speed and rates of acceleration without drawing a peak above its working limit, a chart has been prepared as in Fig. 1, while Fig. 2 shows the speed, torque, current and horsepower characteristics of the motor. Fig. 1 is calculated on several assumptions which may not be altogether correct but the curves make a good basis for comparing conditions. These assumptions are that the rolling friction of the crane is 50 pounds per ton and that there are no gear losses between the motor and track. The maximum peak torque allowable at the motor shaft is taken as 78 foot pounds. The total flywheel effect of the motor armature brake wheel and gears is taken as 8.4 pounds at radius of 1 foot on the armature shaft. Fig. 1 is suggested as a convenient form of curves for determining the work a motor can do, but to cover conditions more completely it might be necessary to make up, for every motor, several sets of curves, that is, one set for 20 pounds per ton rolling friction, one for 35 pounds per ton, etc. Fifty pounds per ton rolling friction was chosen because, while this is too high for most cranes after they have worn smooth, it is often correct for new cranes. It is easy to apply a correction for gear losses to any of these curves.

If the curve indicates that a motor can handle 10 tons in the desired manner this may be cut to 9 or 9.5 tons so as to allow for gear losses. The way to apply Fig. 1 is as follows: Suppose a 12.5 ton loaded crane is being considered and a rate of acceleration of 2 feet per second per second is desired, read up from 12.5 tons to the curve marked "2 feet per second per second". The intersection is at 170 feet per minute. Then read across to the feet per minute vs. revolutions per minute curve marked "2 feet per second per second". The intersection is at 995 revolutions per minute. This indicates that the motor should be geared so that 995 revolutions per minute corresponds to 170 feet per minute and that, when so geared, it can start 12.5 tons at 2 feet per second per second peak acceleration without exceeding 78 foot pounds torque on the motor shaft.

The only elements of uncertainty about applying Fig. 1 in determining whether a motor will handle a crane is the rolling or track friction and the rate of acceleration needed. The writer would say that if 50 pounds per ton is used for track friction, and 3 feet per second per second as the peak rate for accelerating the crane, without load, the motor will be large enough for all cases and too large for most cases. The following rules are

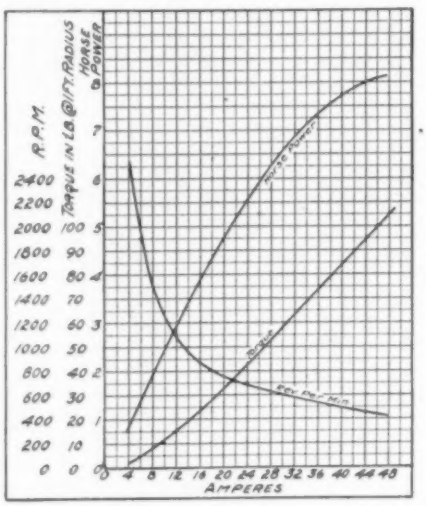


FIG. 2—SPEED, TORQUE, CURRENT AND HORSEPOWER CHARACTERISTICS OF MOTOR

suggested for the selection of motors and gearing for bridge motion:

If a large number of cranes are to be considered, prepare a curve similar to Fig. 1, which will show the limitations of a motor. If only one crane is to be considered guess at the proper size of the motor and gearing and then check it up by the equations.

If automatic magnetic control is to be used on the crane, plan for a peak acceleration of 2 feet per second per second for all cranes except those which do "stunts" by swinging the load or which make short, rapid trips of 50 or 60 feet per minute. In this case plan on a peak acceleration of 3 feet per second per second.

If only one-fourth of the wheels are driven it is not necessary to plan for a greater peak acceleration than 2 feet per second per second.

If the crane is to be manually controlled, plan on a peak acceleration of from 1 to 3 feet per second per second depending on the nature of the work. For power house and stand-by cranes 1 foot per second per second is ample; for hot-metal ladle cranes 3 feet per second per second and for busy loading cranes 2 to 3 feet per second per second.

In deciding what peak of acceleration the motor can stand without damage to itself, the particular characteristics of the motor should be determined by referring to the manufacturer, but in any event there should be no sparking at the commutator when the motor is started at the maximum rate and the shaft and bearing stresses should come within conservative limits at these rates.

Studies Mineral Output

Necessities brought about by the war have stimulated to greater activity the functions of the bureau of mines, whose normal field covers the production of metals and minerals, and joins that of the war industries board. Much of this increased activity has been undertaken by the war minerals investigation branch of the bureau. Under this branch most of the special war activities have been grouped. In the field of actual mining and milling numerous engineers have been active and a policy of having them afford help in the way of advice as to correct mining and milling methods has been adopted.

In the various experiment stations of the bureau special problems of ore treatment have been and are under investigation. Satisfactory experiments in the concentration of the western chrome ores have been made at Seattle, and experiments on the West Texas sulphur ores show their probable amenability to the flotation method. These are only examples of numerous investigations of milling methods, which cover manganese, graphite, and other war minerals. Laboratory investigations with the view of increasing the supply of electrodes are under way in Colorado. The production of chromite has been thoroughly investigated by field parties in all parts of the country and engineers have investigated deposits in Newfoundland and Cuba.

The war minerals investigation organization has provided for handling the questions of priorities, both of railroad transportation and of supplies of fuel. The bureau has also acted as adviser to the railroad administration as to the construction of short lines designed to tap mines, the problem being whether such construction was a war necessity or not.

The labor section of the bureau is co-operating with the department of labor, and handles the whole subject of mining labor. In many cases labor difficulties to which important war mines were submitted have been relieved, and the measures taken by the United States Employment Service to allocate unskilled labor have been directed as regards mining labor in such a way as to bring about the maximum efficiency. Co-operation with the war department has also been undertaken, supplying classification of the mining men according to their work as a basis for deferred classification.

Close co-operation has been maintained with the United States geological survey, which has been investigating the war minerals from the geological standpoint. In the carrying out of its special functions as the representative of the mining industry in the production of war minerals an increased expansion of activity of the bureau is to be expected.

War Transforms Jobbing Business

Wide Study of Conditions in Various Foreign Countries Shows Marked Readjustment to National Necessities in Iron, Steel and Hardware Lines—Developments in Merchandising Are Summarized and Analyzed

WAR and its demands have almost completely revolutionized the general methods and scope of business in iron and steel and hardware lines in all countries which are actively engaged in the great conflict. This has been due to the radical changes which the markets have undergone and in a more fundamental sense to the necessity of enforcing strict economy of iron and steel to serve vital war necessities. It has been pointed out that probably as never before business men especially those engaged in the jobbing and retailing of these lines have been driven to a remarkable development of their personal and economic resources. A host of ideas, beliefs and sentiments firmly implanted by precedent before the war has been brushed aside and things accomplished which in other years would have been regarded as practically impossible even under the conditions obtaining today.

The great transformation of the iron and steel and hardware business in England, France and Canada under war conditions is shown in interesting data which has been collected from original sources in these countries by R. K. Carter & Co., 66-68 Reade street, New York, buyers for jobbers of hardware, iron, steel, machinery, supplies, etc. Several months ago this company determined to ascertain first hand, the exact effects of the war upon the iron, steel and hardware business in the several countries. An identical list of questions was sent to American consuls in the large cities in England, France and directly to the leading houses of Canada. Four months was spent in the collection of this information and in the end it was carefully analyzed and summarized. A composite statement of the situation along the lines indicated in the three countries, therefore, has been afforded.

The list of the various questions submitted and the consolidated reports from the different countries, are given as follows:

To what extent are they employing their women help especially in the sales force and stock-keeping?

ENGLAND—Nearly all firms are using women to some extent, reports showing from 20 to 70 per cent. Women have not been found satisfactory in sales or stock work but have been satisfactory in clerical positions. Lack of labor has caused some curtailment.

FRANCE—The use of women is more general. The reports show that about 50 per cent of the employed forces are so made up and also that business concerns endeavor to get along with fewer men.

CANADA—Women are employed very little in Canada in this line of work and then chiefly for office duties.

How is the hardware business in general?

ENGLAND—Good. Some reports say excellent and the volume is limited only by the ability to secure supplies. Sales are large, but much business has been lost for the reason stated. State control also restricts business to some extent.

FRANCE—Quite prosperous without flourishing. Could be doubled or trebled if current articles of commerce could be obtained. Prices high.

CANADA—The answers are at variance but in general ways show that the business is good in central and eastern Canada but not quite so good in western Canada.

What departments are doing the most business?

ENGLAND—Answers show quite a variation, but run pretty much as follows: Domestic and household goods, especially labor saving tools, iron and steel, agricultural tools and implements, garden tools, machine tools.

FRANCE—Tools, agricultural implements, iron and steel, steel products, wire products and all material for war needs.

CANADA—Factory supplies, heavy tools, agricultural implements and tools.

What lines of merchandise do they find the most profitable?

ENGLAND—Profits good all around and practically no price cutting.

FRANCE—The answers show that the general line is profitable; in fact, anything the trade has to sell.

CANADA—Business generally is profitable.

Were many failures brought on by the changed conditions of war time?

ENGLAND—In almost every instance the answer was no or very few.

FRANCE—The answers are practically unanimously no.

CANADA—No.

Do the merchants experience a great deal of trouble in buying merchandise?

ENGLAND—Yes. Supplies are hard to obtain and great difficulty is experienced in replacing stocks. Orders have to be entered months ahead. Import and government restrictions have also added to the difficulty.

FRANCE—Yes. Domestic manufacturers largely are devoted to producing war materials. They are greatly dependent upon foreign goods, especially American, and import restrictions are a handicap.

CANADA—Yes. All are agreed.

Are articles in the hardware line still being extensively manufactured?

ENGLAND—The majority says no. War work is given the preference. The factories are running 75 per cent on war work and 25 per cent on regular work. Supplies are limited and many only are obtainable by government certificate or permit.

FRANCE—The general impression is no. The factories are running mostly on war material and any surplus is insufficient.

CANADA—Only in a fair degree.

Has the hardware business, manufacturing, jobbing and retailing, held its own?

ENGLAND—Yes. Jobbers have had their troubles, but manufacturers are less inclined to deal with small buyers. Retailers are doing well, but have to work harder than ever before.

FRANCE—The answer yes predominates with explanations in regard to difficulties in keeping up stocks.

CANADA—Every answer is yes.

Have the merchants been forced to put in new lines of merchandise as substitutes?

ENGLAND—The answers are equally divided between yes and no, but the explanations show that a ready sale can be found for anything in the line of hardware.

FRANCE—A wide variation in answers to this question is shown but it appears that stocks are much changed and merchants will put in anything to take the place of goods not procurable.

CANADA—The prevailing opinion appears to be no.

Iron Ore Shows Gain

Iron ore mined in the United States during 1917 totaled 75,288,851 gross tons and exceeded the 1916 output by 121,179 tons, according to statistics compiled under the direction of E. F. Burchard of the United States geological survey. The shipments from the mines in 1917 were 75,573,181 gross tons, valued at $233,260,333, a decrease in quantity of 2,297,372 tons and an increase in value of $56,358,056, as compared with shipments for 1916. Stocks of iron ore at the mines, mainly in Minnesota and Michigan, amounted at the close of 1917 to 10,628,908 gross tons, compared with 10,876,352 gross tons in 1916.

Mining was done in 25 states during the year and in 24 during 1916. California, Montana and Nevada produced ore for metallurgic flux only; part of the output of Colorado, New Mexico and Utah was used for smelter flux and part for pig iron and ferroalloys; the remaining states produced iron ore mainly for use in blast furnaces, except small quantities used in the manufacture of paints, which came from Michigan, New York, Wisconsin and Georgia. The ore output of Minnesota, Michigan and Alabama, which states have for years been the largest producers of iron ore, was close to that of 1916, and more than 1,000,000 tons of ore was produced by New York and Wisconsin.

In the Lake Superior district nearly

85 per cent of the total production in 1917 was mined. About 8 per cent was mined in the Birmingham district. There were small decreases in output from the Lake Superior, Chattanooga and New York-New Jersey districts, and increases in the Birmingham and Adirondack districts, the production from the latter exceeding 1,000,000 tons. Two of the Lake Superior ranges mined a larger quantity in 1917 than in 1916. They were the Gogebic and Cuyuna ranges. The increase was 2.26 and 27.7 per cent, respectively.

The accompanying table gives a summary of figures presented by the survey by districts and grades.

Eleven mines produced more than 1,000,000 tons of iron ore each in 1917. This was one less than in 1916. The output of the first four largest producers during the year was respectively, 6,468,483; 2,955,022; 2,525,145; and 2,022,816 tons. The Hull-Rust mine at Hibbing, Minn., which produced more than one-tenth of all the ore mined in 1916, decreased more than 1,000,000 tons in 1917.

Iron Ore Mined by Districts and Grades

(In Gross Tons)

District	Hematite	Brown ore	Magnetite	Carbonate	Total	Per cent of change in 1917
Lake Superior*....	63,481,321	.....	.....	....	63,481,321	—0.39
Birmingham	5,728,862	458,211	.....	....	6,187,073	+3.53
Chattanooga	544,023	277,462	.....	....	821,485	—1.81
Adirondack	.....	.....	1,100,001	....	1,100,001	+2.07
Northern New Jersey and southeastern New York.....	.....	†.....	†642,232	....	642,232	—5.99
Other districts....	‡1,011,373	1,233,106	812,260	....	3,056,739	+6.91
	70,765,579	1,968,779	2,554,493	....	75,288,851	+0.16

All figures exclusive of ore containing 5 per cent or more manganese.
*Includes only those mines in Wisconsin actually in the Lake Superior district.
†A small quantity of brown ore included in magnetite.
‡A small quantity of brown ore included in hematite.

Britons Surmount Obstacles, Raise Capital

AN interesting statement of the relations between British industry and the war was made recently by Lord Aberconway, who presided at the annual meeting of John Brown & Co., which controls extensive interests in iron and steelworks, coal mines and shipbuilding plants in Great Britain. At this meeting which was held in Birmingham the company increased its capital by $5,000,000, following the action of Vickers Ltd., another great firm of British ironworkers whose plants have been devoted largely to war production, in raising its capital to $60,000,000.

Lord Aberconway said his company was among the largest government contractors in Great Britain. All its resources had been placed unreservedly at the service of the nation and the government had a monopoly on its output. Production had been good, but prices low.

"We have never attempted to exploit the nation; we have never attempted to make money out of the war, and I believe this policy will have the approval of every patriotic shareholder," he said.

He could not give comparative tonnage figures from year to year, because the products of the company's plant in Sheffield were of a special character; the steel was of very high quality, and mere statements of tonnage would carry little weight. He noted that the output of the steel makers of the country had largely increased, and that they were able to meet all the company's requirements. They company had never been held up at its shipyards for want of material. The shipbuilding output was immense, the company having played a great part behind the scenes in the war.

The collieries had suffered from the loss of men. At Aldwarke and Rotherham Main the company employed 6000 men in 1914, and now barely 4000. A great deal had been heard about slacking on the part of men. He did not think it was fair to brand the miners as a whole with the vice of absenteeism. In some districts the attendance was good. In Leicestershire, for instance, absenteeism was only 1½ per cent above the figure represented by unavoidable causes. He said the percentage of absenteeism had been improving, but he could not say that the Yorkshire figures had up to the present improved, although it was hoped the men would respond to the appeal made to them by the government. He declared the work was not for shareholders, but for every man, woman, and child in the nation. He believed that despite the coal shortage, if every man would do his utmost in the mines, and if the government could give reasonable assistance in supplying men, the country would pull through, but if these conditions are not obtained there will undoubtedly be misery in tens of thousands of homes during the coming winter. The output of coal per man per day is somewhat higher this year than it was before the war. There are tens of thousands of the right kind of miners in the army who might well be sent back. He hoped the government would do something to restore a reasonable balance. The company did not want the inefficient men such as had been sent back, but the best grade men were essential if the needs of the nation were to be met.

Lord Aberconway went on to refer to the various extensions that had been carried out by the company's allied firms. At Messrs. Harland and Wolff's and at Messrs Thomas Firth and Sons in particular great developments had been made during the last 12 months. At Scunthorpe, too, the company had almost completed works for steel castings to meet requirements which it lacked room for in Sheffield. Then, jointly with the Darlington Forge it had acquired the Carnforth Hematite Iron concern, so as to ensure a supply of this indispensable product, of which the available sources were limited.

The company's mines in Spain are continuing to work under difficulties, but the moment they are able to make adequate shipments he believed the company would have no reason to be disappointed with the results. At the Coventry Ordnance works an enormous amount of work had been done, entirely for the government. One of the best balance sheets ever presented in connection with the Coventry works was presented this year.

Graphite Not Prohibited

Washington, Nov. 4.—Officials of the war industries board have denied the report that it intends to prohibit the use of graphite electrodes in electric steel furnaces after Jan. 1. No order to this effect has been issued and as far as could be learned none likely will be. Efforts will be made, in fact, are being made to get users of graphite electrodes to use carbon electrodes instead, but as far as an arbitrary ruling on this point is concerned, all such rumors are said to be groundless.

The carbon electrode situation is said to be fairly easy now and is expected to continue. The demand for graphite electrodes, however, is very great, the government especially requiring large amounts in the manufacture of chlorine and in other chemical production. The war industries board intends to see that the government's supply is steadily maintained, even to the extent of shutting down steel furnaces, but the possibility of the situation becoming that acute apparently is remote.

Many users of graphite electrodes carry carbon substitutes for use in case of emergency and the government feels those users should regard the present situation as warranting use of the carbons. Appeal is to be made to all electrode users to substitute carbons for graphite wherever and whenever possible, without upsetting regular practice.

Ford For Straight Eight-Hour Day

Detroit Manufacturer, Acting as Umpire in Wheeling Machinists' Dispute, Declares It Better Than "Basic" Plan, Wherein Eight-Hour Limit is Constantly Exceeded—Formal Decision, However, Provides for Overtime

WASHINGTON, Nov. 5.—Radical views on labor were expressed by Henry Ford, the Detroit manufacturer, as umpire in the case of the International Association of Machinists against the Wheeling Mold & Foundry Co., Wheeling, W. Va. While Supreme Court Justice Walter Clark of North Carolina, umpire in the dispute between the company and its molders, decided in favor of the basic 8-hour day, leaving it to representatives of the company and its molders to say when necessity required working longer hours, Mr. Ford went on record in favor of a straight 8-hour day, regardless of emergencies.

Mr. Ford's radical sentiments were expressed as an "aside," his formal decision, which has been entered as the award of the war labor board, closely adhering to that of Judge Clark's in the case of the molders. In other words, Mr. Ford says the basic 8-hour day should be observed, with payment of time and one-half for work in excess on week days and double time for Sundays, while expressing his personal opinion that the straight 8-hour day is the best plan. He holds that the latter practice would be better than to conform with the so-called 8-hour day "when the latter is continually and almost uniformly being practically exceeded in the number of working hours."

"My experience, and also my reason," says Mr. Ford in his report, "teaches me that very few emergencies ever exist in a manufacturing business, justifying the practice of exceeding eight working hours per day. The strain of eight hours is enough, and the hours should never be increased, except under the most extraordinary circumstances. I cannot dwell too much on this. For the good of the men, for the good of the employer, and for the general results, I would admonish those interested to adhere to the straight 8-hour day."

Concerning the award, Joint Chairman Frank P. Walsh of the board said:

"Every arbitrator who has been called by the national war labor board has decided in favor of the 8-hour day. These arbitrators are drawn by lot from a panel selected by the President. They include some of the largest employers in the country. The first was Otto Eidlitz, the builder. Mr. Ford speaks as one of the largest employers. Judge Clark who reached the same conclusion, considered the matter from the standpoint of war production, of the welfare of the workers and of the general prosperity.

"In addition the board has put the basic 8-hour day into effect in many industries. Therefore, it is my hope that this question is being finally settled and that the 8-hour practice may become uniform."

More Wages Recommended for Anthracite Miners

Washington, Nov. 5.—The conference of national labor adjusting agencies has recommended an increase of wages for miners in the anthracite fields, despite the fact that the miners entered into a wage agreement with the operators last December with a pledge to the fuel administration that the agreement would continue for the duration of the war.

Since that agreement was made many miners have deserted the fields and production may be seriously hampered unless the exodus is checked, according to an announcement by the conference. In seeking to learn the cause the conference's representatives found that the men are quitting because they are now dissatisfied with the wages specified in the agreement. Representatives of the operators and workers have been conferring with Fuel Administrator Garfield, the workers claiming that the cost of living has advanced to such an extent that the wages offered last December are now inadequate. After a careful study of the situation, the conference made this recommendation:

We recommend a scale of wages ranging from 42 cents per hour for laborers outside of the mine to estimated average earnings for contract miners of approximately $6.60 per day. This scale we have found to be in line with the wages already established by governmental agencies for other industries and are convinced that its adoption will act as a stabilizing influence.

Vaccinate Steel Employes Against Influenza

All employes at the headquarters of the United States Steel Corp., 71 Broadway, New York, last week were immunized against Spanish influenza by the use of vaccine. Chairman E. H. Gary and President James A. Farrell were the first to be inoculated. About one hour was required to give the first injection to the 125 persons who constitute the organization. A second and third inoculation will be required.

Judge Gary sent the following telegram to President Wilson regarding precautions to be taken against the disease:

"In view of the serious and extended epidemic which is spreading throughout the country, resulting fatally in many cases, we feel that every precaution should be exercised to safeguard the health of our employes. It has been suggested that an antitoxin has been prepared and is being used with considerable success. We would like to have our presidents carefully consider this subject after consultation with their medical departments, and if they believe, and our employes also believe, in the efficacy of this treatment and voluntarily request its use, we would approve any expenditure for the necessary treatment. This is offered to you as a suggestion to be determined by you, and more especially by the men themselves. We should do whatever is safe and practicable to conserve the health, comfort and happiness of our employes and their families."

Labor Board Grants More Wages in Two Plants

No adult male worker shall receive less than 40 cents an hour and no girl or woman, 18 years of age or over, shall receive less than 30 cents an hour, excepting apprentices, in the plants of the Willys-Overland Co., at Elyria, O., and St. Louis Car Co., at St. Louis, according to recent decision of the war labor board. In the case of the former company the board allowed a 30 per cent increase for employes receiving less than 45 cents an hour and 25 per cent increase for those receiving more. In the car company's case the board awarded an increase of 25 per cent for all day or hour workers and provided for a conference to dispose of the question of wages for piece workers.

Puddlers Given Increase

As divulged at the bi-monthly settlement between the representatives of the Amalgamated Association of Iron, Steel and Tin Workers and the Western Bar Iron association, the average sales price of bar iron in the two months previous to Oct. 20, was $3.45. This gave puddlers another wage increase of 25 cents a ton making their wages $16.80 per ton for two months from Nov. 1. A corresponding increase was granted to finishers. This new average sales price is an advance of five cents per 100 pounds over that prevailing the previous two months and is within five cents of the government maximum of $3.50. J. H. Nutt represented the manufacturers in the conference with the Amalgamated association committee which was headed by President John Williams.

The comparative bi-monthly bar iron average price per pound since January, 1917, and the resultant puddling rate are as follows:

	1917		1918	
Jan.-Feb.	2.35c	$11.30	3.10c	$15.05
Mar.-Apr.	2.45c	11.80	3.30c	16.05
May-June	2.65c	12.80	3.35c	16.30
July-Aug.	2.75c	13.30	3.40c	16.55
Sept.-Oct.	2.85c	13.80	3.45c	16.80
Nov.-Dec.	2.95c	14.30	....	.....

Exporters in Drive for World Trade

American Manufacturers Export Association at Great Convention Urges Country to Get Down to Business on After-War Trade—Appeal to Government for Establishing Merchant Marine on Sound Footing

America's Opportunity---The New Merchant Marine!

MEMBERS of the American Manufacturers Export association at their convention in New York last week adopted a resolution relative to the United States merchant marine after the war, submitted by E. M. Herr, president, Westinghouse Electric & Mfg. Co., as follows:

RESOLVED: That the American Manufacturers Export association records its belief that the emergency fleet now built and building should be made the basis of an American merchant marine at the earliest possible moment after it has served its military purpose.

That when these vessels are ready for commercial use they should be released for private ownership and operation upon suitable terms.

That in view of the unprecedented cost of building these vessels to serve a military emergency, the capital charges should be written down to meet the cost of building the foreign-owned ships with which they must compete.

That a further reduction in the capital charges should be made to offset the differences in labor and other operating costs created by the differences in navigation laws here and abroad.

That when, in this manner the American merchant marine has been placed upon a proper operating basis, competition should be allowed and encouraged between private American ship operators, and

BE IT FURTHER RESOLVED: That proper provision should be made by congress for the development and extension of port and terminal facilities for American ships at home and abroad.

WITH problems of peace readjustment confronting American business in the early future, the ninth annual convention of American Manufacturers Export association in New York, Oct. 30-31, was particularly timely. More interest is evident among manufacturers now than ever before in our after-the-war export trade as an outlet for America's surplus output of many commodities, and this interest was reflected by the record attendance at the convention, more than 1500, while the membership of the association is only 1000. In discussing the general theme of after-war commercial preparedness, speakers warned against any relaxation of war effort. They urged, however, that academic phases of after-war preparedness be dropped and that business men get down to real business and prepare.

The important problems confronting exporters were grouped, each session being devoted to a general topic. These groups included: Financing of foreign trade; educating men for foreign trade service; foreign advertising; patents and trade marks; relation of the government to foreign commerce; our ships after the war; sales organizations abroad. Resolutions were adopted at the conclusion of each session summarizing the sentiment of the convention with respect to each topic.

The first session was devoted to the financing of foreign trade, this session being presided over by Lewis E. Pierson, president of the Irving National bank, New York. Mr. Pierson said in part:

"The keynote of this convention is 'Prepare for after the war.' We should not be deluded with the belief that our preparedness thus far has gone any further than the immediate purposes and demands of the war. We believe we know what would constitute a desirable after-the-war condition, but by what means that condition is to be brought about is a question not yet clear, the consideration of which has been too long delayed.

Making Use of Our Ships

"A merchant marine we shall have, but what shall we do with it? Are we making such a study of world shipping conditions as will show us how to use these ships effectively? What are we doing toward the elimination of absurdities in our laws, which, at present, make it practically impossible for ships flying our flag to compete successfully with the ships of other nations? With reference to foreign credits, too, we are but poorly prepared. Cash against documents in New York is delightful and convenient, while the exigencies of war confer that privilege upon us, but how about the time after the war when competition between nations again will assume active form and when the foreign customers we now hold so securely on our own terms will be in a position to choose between our terms and those offered by our competitors of other nations?

"With this situation before us and just at this time it would seem peculiarly appropriate that this association, so highly representative as it is of organized American industry, should attack these problems of after-the-war preparedness literally and squarely, and with the determination of reaching conclusions which will be of constructive value. Among the lessons of war none is more important than that which shows the possibilities of organized industry in times of national stress. The war, when it came, found the government unprepared; it found the psychology of the nation unprepared; but the organized industry of the country it did not find unprepared, and the usefulness of these industries to the nation and to the world during the war has been limited only to the extent to which they have been called on to assist in the war.

"The great world problems are interesting and important and in our treatment of them we can afford to be broad minded and generous, but just now we are most interested in the simple, everyday adjustments and safeguards which will protect American interests at home and abroad, however these world problems may be settled. We must see to it that the advantages which have been conferred upon us by the war do not pass from our hands.

"The national inspiration which during the war had brought labor and capital, government and private interest together in a common cause should be preserved for the less conspicuous but not less important common cause which will confront us all when the war is over and world competition and world strife again assert themselves. A new era of cooperation between wage earners, management and stockholders or owners of business concerns, is vital to the future of each industry. All are vitally interested in prosperity and all should understand the problems so as to be able to stand shoulder to shoulder in an intelligent defense of their interests and not to continue to be divided among themselves by selfish counsel, muckraking proclivities or evil German propaganda, all of which tend toward the destruction of the foundation of successful business."

Other speakers on technical phases of the financial problems were Lawrence M. Jacobs, vice president, International Banking Corp., who discussed "Acceptances in Foreign Trade"; Fred I. Kent, vice president, Bankers Trust Co., who talked on "Facilities of American Banking Institutions for Financing Foreign Trade"; J. H. Trego, secretary National Association of Credit Men, who spoke on "Foreign Credit, with Particular Reference to Foreign Credit Facilities", and E. A.

De Lima, president, Battery Park National bank, whose subject was "Extension of Foreign Credit."

W. W. Nichols, of the Allis-Chalmers Mfg. Co., presided over the session devoted to the topic of "Education for Foreign Trade Service." Mr. Nichols said in part:

"Education for foreign trade should be divided into two parts: The education of public opinion comes first and foremost because popular opinion will shape all federal legislation to make or break our enterprise; and second, the peculiar education of the individual whose life work will be foreign trade."

Ask Government to Aid

Among the conclusions reached at this session was that the federal government should establish opportunities at the training camps for men who desire to study foreign trade, so that there might be no lack of skilled operatives for the trade at the conclusion of hostilities. A resolution was adopted to make recommendations to the proper government authorities. Speakers at this session included M. A. Oudin, foreign manager, General Electric Co., on "Foreign Trade Service in the Present Emergency"; Frank H. Taylor, president, S. S. White Dental Mfg. Co., on "Our New Foreign Representatives"; H. E. Cole, Standard Oil Co., on "How Can Business Train for Foreign Trade"; Glenn Levin Swiggett, United States bureau of education, on "What the United States Bureau of Education is Doing and Can Do"; George E. Smith, president, Royal Typewriter Co., on "American Representatives for American Goods."

The session on foreign advertising was presided over by H. L. Gemberling, export manager, Sherwin-Williams Co. Ways and means of foreign advertising of American goods were considered at this session. It was the belief of those present that America's great part in the war, her struggle for the predominance of noble ideals, has been a great step in the creation of good will toward American business in foreign lands. Speakers at this session included D. L. Brown, Goodyear Tire & Rubber Co., on "Why Advertise Abroad?"; H. B. Gregory, president, Export Managers club of New York, on "Direct Advertising Abroad"; C. H. Green, advertising manager, Federal Export Corp., on "Various Methods of Foreign Advertising"; E. M. West, Calkins & Holden Advertising Agency, on "How the Advertising Agency Can Help"; Carl Byoir, associate general director, foreign section, committee on public information, on " Creating Good Will Abroad."

The session on "Patents and Trade Marks" was presided over by C. W. Beaver, Yale & Towne Mfg. Co. Speakers at this session included: Lawrence Langer, member of the patent and trade mark committee of the association, on "Foreign Trade Marks, the Present and the Future"; F. E. Stewart, H. K. Mulford Co., on "Patent and Trade Mark Improvements"; and E. B. Hess, vice president Royal Typewriter Co., on "Inequalities in Trade Mark and Patent Laws."

Thursday morning, B. S. Cutler, chief of the bureau of foreign and domestic service, talked on "A Genuine Department of Commerce." He described the present organization of the bureau and outlined plans for extension of the bureau to fit the demands of the forthcoming economic situation. H. C. Lewis, vice president, National Paper & Type Co., talked on "The Relation of Government to Foreign Commerce"; Frederick B. Whitney, president, Deselektro Co., discussed "Commercial Treaties and Trade Agreements, Incident to War, Peace and Reconstruction."

The session which dealt with the general topic, "Our Ships After the War," was one of the most interesting of the convention. This session was presided over by H. C. Matlack, president, Matlack Coal & Iron Corp. E. M. Herr, president, Westinghouse Electric & Mfg. Co., read the first paper, on "Our Ships After the War, the Manufacturer's Viewpoint."

GEORGE E. SMITH

Who was re-elected president of the American Manufacturers Export Association

Discussing government ownership, Mr. Herr said:

"Government ownership of transportation facilities has never brought cheap rates and efficient service, and in my judgment never will, especially under a republican form of government, or in fact any form of government now to be considered. Why government ownership is inefficient has been so thoroughly discussed and clearly explained that it is unnecessary to here repeat the argument. We must, therefore, turn to private ownership for the successful operation of our merchant ships.

"Under private ownership, for successful results our present shipping laws must be modified and adjusted to the needs of oversea traffic so that our ships can be manned and operated in competition with those of other nations. This means the repeal of the La Follette seaman's act and the enactment of such new legislation as the necessities of our competition may require.

"Let us endeavor to shape this legislation so that while fair, even liberal, to American labor, it will place no embargo on the employment of such foreign labor as may be necessary on our ships to enable them to be successfully operated. The higher wages and better conditions which our labor will undoubtedly demand need not be a bar to cheap transportation and effective competition with foreign shipping.

"This great American merchant fleet must not only be manned and operated economically but it must be capitalized fairly and with due consideration for the real value of these ships when taken over by private interests. This will require that the government amortize as part of the cost of the war whatever excess capital cost has been entailed in their production during war times."

Other speakers at the session on shipping included: Frank B. Mackey, vice president, Barber Steamship Line, and Joseph Hodgson, New York & Cuba Mail Steamship Co., on "Our Mercantile Marine"; J. J. Slechta, traffic manager, Gaston, Williams & Wigmore Shipping Corp., on "How Shall We Have a Real Merchant Marine", and John Meigs, Harriman Steamship Line, on "The Urgent Need of Port and Terminal Improvements."

Discuss Sales Organizations

The final session was given over to the topic "Sales Organizations Abroad", presided over by C. J. Warren, manager, foreign department, Johns-Manville Co. Of leading interest at this session was a discussion of the Webb-Pomerene law by Gilbert H. Montague, of the New York bar. Mr. Montague said that if this law be utilized intelligently by American business and sympathetically applied by the federal trade commission, it would prove one of the most effective agents in the upbuilding of American export trade after the war.

John Walsh, chief counsel for the federal trade commission, said the federal trade commission would do all in its power to apply the law sympathetically and endorsed Mr. Montague's interpretation of the law. John F. McClain, vice president, Remington Typewriter Co., talking on "The Development by a Manufacturer of a Foreign Sales Organization", emphasized that the exporter must shape his policy to fit the viewpoint of the foreign consumers. J. F. Fowler, vice president, W. R. Grace & Co., talked on "The Export Merchant."

At the ninth annual banquet, Friday evening, Frank A. Vanderlip, president of the National City bank, sounded a note of warning against political controversy at this time. Sir Henry Babbington Smith, acting high commissioner for Great Britain, Secretary of Commerce Redfield, A. B. Johnson, Herbert Bayard Swope, representing the war industries board, and Martin W. Littleton also spoke briefly.

At the executive session of the convention, George E. Smith, president, Royal Typewriter Co., was re-elected president of the association. Vice presidents were elected as follows: William Ingersoll, Robert Ingersoll & Bro.; H. L. Willson, Columbia Graphaphone Co.; J. S. Lawrence, Lawrence & Co.; Julius Goslin, Joubert, Goslin Mfg. Co.; George Meyercord, Meyercord Co.

Rail Price Fixing is Still Delayed

Pooling of Old Contracts at Lower Figures May Supply the Explanation—Locomotive Building Makes Strides Under Concentration of Production—Distribution of 40,000 Cars for Pershing Announced

WASHINGTON, Nov. 5.—One of the most puzzling questions in Washington today is why the price fixing committee of the war industries board doesn't assert its authority and finally settle the matter of steel rail prices. The subject has been held up for months because the railroad administration has declined to agree to the recommendation of $55 per ton for bessemer and $57 for open hearth, which has been approved by the army, the navy, the allies and the shipping board. It was said recently that Director General McAdoo favored pooling of all old rail contracts and making deliveries on them as he saw fit. Chairman Baruch of the war industries board opposed this but officials here today decline to discuss the subject. It is said these old contracts call for rails at an average of $36 per ton.

While the rail price matter is being buffeted about, the locomotive question is said to be being answered very satisfactorily. The war industries board has announced that the three principal standard gage companies—Baldwin Locomotive Works, American Locomotive Co., and the Lima Locomotive Works, Inc.—have finally been able to double their normal output without the expense of building plant additions, a project which originally was expected to cost the government close to $25,000,000. In the words of Chairman Baruch, "redistribution of orders and concentration by each of the plants on particular types of locomotives has made possible an intensity of effort unprecedented in the industry."

Concentrate Locomotive Orders

Part of the "intensity of effort" has been the assignment to the Baldwin company of all orders for the United States military railways and the adoption by England and France of the American type of locomotive for similar service, all of which have also been ordered from Baldwin. This plan leaves the American and Lima companies free to turn out locomotives for the American domestic railways. This arrangement is not understood to mean a shifting of old contracts, but rather its observance in more recent and future orders.

J. Rogers Flannery, director of the division of railway equipment and supplies, of the war industries board, says the results of this arrangement will be even more successful in the future. He declares that while 144 locomotives were turned out by the three companies in the week ending Oct. 26, establishing a new record, production was limited because of the influenza epidemic. In 30 days more "the rate of production will show a still greater increase." The best previous weekly record was an average of 72.6 locomotives—3776 a year—in a 12 months' period between 1910 and August this year.

The railroad administration last week announced that in the week when 144 locomotives were turned out, 58 were delivered to the lines under control of the government. Forty-three of these were from the American company's plants, nine from Lima and six from Baldwin. It is presumed the remaining 86 were for shipment overseas.

Last week it was stated the railroad administration had ordered 600 more locomotives, 500 from the American company and 100 from Lima. This bears out the statement that Baldwin is to be left free to handle the army and foreign orders. The new allocation of locomotives now makes a total of 2030 on order from the railroad administration. The other 1430 had been contracted for in various installments.

It also became known last week just what awards were made in the allocation of the 40,000 freight cars for service with the army in France. It develops that the total actually is 39,995, awarded as follows: American Car & Foundry Co., 8300; Standard Steel Car Co., 7060; Haskell & Barker Car Co., 5950; Pressed Steel Car Co., 5475; Pullman Co., 4400; Mt. Vernon Car Mfg. Co., 1200; Keith Car & Mfg. Co., 1150; Cambria Steel Co., 1100; Ralston Steel Car Co., 1000; Bettendorf Co., 1000; Liberty Car & Equipment Co., 800; Pennsylvania Tank Car Co., 660; Keith Railway Equipment Co., 500; Koppel Industrial Construction & Equipment Co., 500; St. Louis Car Co., 400; General American Tank Car Corp., 400; Standard Car Construction Co., 100.

Bayonets to be Made by Rolling Process

WASHINGTON, Nov. 5.—Bayonets for the army in the future will probably be manufactured entirely by the rolling process. Recent tests by the ordnance department show that this type is wholly satisfactory. The tests were made with 550 rolled bayonets at the Bridgeport, Conn., plant of the Remington Arms Co., and were the direct cause of the production division recommending the immediate contracting for 300,000 of the new type.

The rolled bayonet, according to the ordnance department, saves approximately 70 operations in manufacture. As army bayonets have been made in the past a series of operations, machining, hardening and tempering of drop-forge steel were necessary, which, to a great extent, are done away with by the rolling process. It is estimated that, in addition to the saving of time, there will be a material reduction in labor requirements, as, with equal factory equipment, only about one-third the labor will be required to turn out the same number of finished bayonets.

Another problem which the ordnance department has had to deal with is the production of commercial ammunition. Questions of reduction have arisen from time to time and the ordnance department has received numerous queries on the subject. The matter has again been taken up and the war department has said that there is not the slightest ground for any further agitation of the subject. Although a further cut of 50 per cent in the production of commercial ammunition is contemplated the ordnance department expresses its hope that a reasonable percentage of plants engaged in commercial manufacture will retain their working organization.

Recommend Further Reduction

At the request of the war industries board that a recommendation be submitted as to the restrictions to be imposed upon commercial cartridge manufacture, the ordnance department advised that a further cut of 50 per cent would be reasonable. The reduction will conserve raw materials and at the same time release a certain amount of labor for work on government orders. But the actual need of the ordnance department for certain types of commercial arms and ammunition brings out the fallacy of the idea that commercial manufacture is to be done away with. Commercial plants of cartridge companies are frequently called upon by the government to produce, often on short notice, various types of metallic and shot gun shells, together with trench warfare material. It is for just this reason, in the opinion of ordnance experts, that they should be kept operating.

Saving in material and time is one of the prime necessities of the ordnance department in its rush to supply our expeditionary forces. For this purpose it has been decided to allow

an alternative specification in future contracts of the ordnance department for the manufacture of magazines for 45-caliber revolvers. About 30,000,000 of the new type of magazines are now nearing completion and, it is estimated by this number, a savings of $900,000 will be effected in the future.

Output of army rifles is now nearing its crest. The Springfield armory by attaining a daily average output of 1400 30-caliber rifles, 1903 models, has achieved a new record in the production of this type of gun. This plant's production, when war was declared, was 60 guns per day, which indicates its considerable growth.

Shipbuilding for the Future is Assured

—HURLEY

WASHINGTON, Nov. 1.—The permanency of shipbuilding after the war for the United States merchant marine is assured according to Chairman Hurley, of the shipping board, in an address to shipyard workers. The project to build the fleet was conceived in the emergency of war, Mr. Hurley says, and it is not intended that this great movement shall cease when the war is ended. Mr. Hurley frankly admits that inefficient plants which have been permitted to operate because of the war emergency and the immediate need of ships, will, as a matter of business expediency, be dropped when the emergency is removed. Efficient plants will be supported with vigor because the shipping board will feel assured that they can turn out ships to further the merchant marine in its efforts to compete with world commerce. After the war the demand for skilled ship workmen will increase rather than diminish because of the large task which will be put upon American yards. Mr. Hurley further states:

"The continuation at full blast of every shipyard, which by results, can justify its operation, of every auxiliary plant that is essential to the shipbuilding program, and of every co-related line of manufacture which contributes to the big idea of ships and shipping, is the first requisite to the future success of the merchant marine."

Charles M. Schwab, director general of the emergency fleet corporation, also in an address to the workers of shipyards said:

"If peace comes soon we will not be anywhere near the end of this shipbuilding job—only at the beginning. The present program calls for 15,000,000 tons of merchant ships, representing something like 3000 vessels. Today we have built only about 2,500,000 tons and we will not have completed our present program until six times more work has been done."

Expect to Fix Price on Tin Imports by Dec. 31

Washington, Nov. 5.—Announcement of the price on tin that has been purchased by the interallied tin executive and allocated to the United States is expected to be made some time before Dec. 31, according to a statement authorized today by Chairman B. M. Baruch, of the war industries board, explaining the regulations by which tin for this country will be distributed among private consumers, jobbers and dealers holding licenses issued by the board.

The American Iron and Steel institute has been asked by the board to take complete charge of the importation, financing and distribution of pig tin, and, as stated heretofore, the United States Steel Products Co., acts as the agent of the institute. The board, the institute and the company now are working out a system of purchasing licenses.

The statement authorized by Mr. Baruch follows:

The tin allocated to the United States under the international agreement will be distributed at cost to the consumers, jobbers and dealers in the United States who hold purchasing licenses issued by the war industries board. Arrangements are now being made for the issuance of these licenses and announcement will be made as soon as the licensing sytem is ready to be put into active operation.

Consumers, jobbers, or dealers requiring spot tin can be assisted in locating available stocks by communicating with the subcommittee on pig tin of the American Iron and Steel institute, room 1811, 71 Broadway, New York City, as the institute is well posted as to all surplus stocks of spot tin.

The war trade board at the request of the war industries board has adopted the following procedure: The revocation of outstanding licenses for the importation of pig tin, tin ore and concentrates, or any chemical extracted therefrom as to ocean shipment after Oct. 20, 1918, shall remain in effect. The bureau of imports is authorized hereafter to issue licenses for the importation of pig tin, where the applications therefor are otherwise in order, to cover shipments purchased prior to Oct. 1, 1918. The bureau is authorized to issue licenses for the importation of pig tin, where the applications therefor are otherwise in order, to the United States Steel Products Co., regardless of the date of purchase of said pig tin. The bureau is authorized to issue licenses for the importation of tin ore, tin concentrates and chemicals extracted from tin ore in accordance with its rules and regulations covering the licensing of the importation of these commodities in force on Oct. 4, 1918.

Limit Freight Rate on Steel Shipped to Italy

Washington, Nov. 5.—The war trade board announces in a new ruling that licenses for exportation of steel to Italy shall be granted only upon receipt of satisfactory evidence that the steel will be transported at a rate of freight not exceeding the rate established by the United States shipping board, which is $67.50 per ton of 2240 pounds, or 40 cubic feet, ship's option, on pieces and packages not over 4480 pounds. The rate applies upon the following commodities: Structural iron and steel, iron and steel shapes, plates, nails, bolts, nuts, plain and corrugated sheets, plain and barbed wire, billets, bars, rails and fastenings, pig iron and pipe.

This ruling does not apply to applications for licenses to ship steel purchased by the British, French or Italian governments.

In another new ruling the board calls attention of exporters to the fact that in submitting applications for export licenses only one copy of form X and of any supplemental form is required. The only documents of which more than one copy is required are the lists of commodities which in some cases are attached to form X in answer to question 5, heretofore published. These lists must be furnished in triplicate.

Government Takes Steps to Increase Coke Output

Washington, Nov. 5.—Special efforts have been made by the United States fuel administration to increase the coke output and to maintain it at a level ample to meet all the government's iron and steel requirements. Spanish influenza has somewhat interefered with the production at most of the mines but some have weathered the storm, and in one case a record output was made when the epidemic was near its crest.

This was accomplished by the Westmoreland district of Pennsylvania which produced 52,197 tons of coke for the week ended Oct. 26. The production manager of the district claims this to be the best record made since the fuel administration opened offices in this field. The district's previous record was 50,162 net tons, which was made during the wek ended Sept. 28.

Simplify Export Rule

Washington, Nov. 5.—In connection with a revised procedure of the war trade board for licensing shipments for exportation to or through the United Kingdom, France, Italy and Belgium, the announcement is made that in the future when applications are filed with the board for licenses to export commodities to France it will not be necessary for exporters to state the number of the French permission or authority to purchase or import, nor to present a copy of the French "attestation". The French government, owing to the shortage of tonnage, has instructed the French high commission in this country to endorse applications for export to France only when definite instructions have been received from the French government that such endorsement should be given.

Men of Machinery Trade

Personal News of a Business Character Regarding the Men of Affairs of the Industry

GEORGE L. HANSEN, who recently was made manager of the Advance Machinery Co., Van Wert, O., was born in Sweden in 1877. He located in this country in 1881 and was graduated from the Batavia, Ill., high school. He served for four years as an apprentice under his father in a large shop in Batavia, of which the latter has been general superintendent for 25 years. He became toolmaker in the Elgin National Watch Co.'s plant and then served the Columbus Watch Co., Columbus and South Bend, Ind., as tool and diemaker for three years. For about a year and one-half, he was associated with a Chicago adding machine manufacturer, now out of business. His next experience was with the Rockford Watch Co., where he was tool and diemaker for two years. He resigned to become toolmaker and chief inspector of the Barber-Coleman Co. After three years, he left with P. B. Goodard at the time the Illinois Tool Co. was organized and became assistant superintendent. After a service there of about three years, he located on a fourth section farm in South Dakota, where he obtained much toolmaking experience. He subsequently returned to the Illinois Tool Co., and when Mr. Goodard left that company to organize the present Goodard Tool Co., he selected Mr. Hansen as superintendent for the Detroit branch of the factory. Here he remained until he became connected with the Advance Machinery Co. Mr. Hansen has become financially interested in the Advance Machinery Co.

T. M. Germane, formerly general manager of the Standard Roller Bearing Co., Philadelphia, has been promoted to be director of sales.

J. R. Miller has been appointed shop superintendent of the Williams Gauge Co., Pittsburgh, Pa., to succeed F. E. Cox.

Joseph L. Ballash resigned recently as assistant superintendent of the Torbensen Axle Co., Cleveland, to become factory manager of the Advance Mfg. & Tool Co., of that city.

George S. Hedge has been placed in charge of the recently opened New York office at 111 Broadway, of the Lakewood Engineering Co., Cleveland.

Herman Fleischer in charge of the plating department of the Stanley Works, New Britain, Conn., completed 50 years of continuous service with the company last month.

F. D. Chriscaden has been appointed sales manager of Wickes Bros., Saginaw, Mich., to succeed G. A. Davies, who resigned to open a machinery sales office of his own in Detroit.

N. P. Winchell, formerly advertising manager of the Graton & Knight Mfg. Co., Worcester, Mass., now is advertising manager of the Coppus Engineering & Equipment Co., in the same city.

W. J. McDowell has severed his connection with the motor truck industry to become manager of the machine tool department, operated by the Fairbanks Co., 64 East Lake street, Chicago.

R. F. Hayes, with headquarters at 42 East Larned street, Detroit, has taken over the used machinery department of the Charles H. Walker Machinery Co., Detroit. He will operate under the name of the Hayes Machinery Co.

Jacob Gauch, for many years connected with John J. Adams, Worcester, Mass., builder of machinery, cutting dies, etc., has resigned to engage in business for himself under the name of Central Machine Works, at 19 Church street, in that city.

Albert S. Cook, president and treasurer of the Asa S. Cook Co., Hartford, Conn., wood-screw machinery, who is a first lieutenant of transport company No. 1, first infantry, Connecticut state guard, has been named as district intelligence officer with rank of captain.

E. P. Cooke was recently appointed sales manager of the Fawcus Machine Co., Pittsburgh. He formerly held an engineering position with the Corn Products Co., Chicago, but resigned to organize the Armstrong-Cooke Steel Co., in which he still retains an interest.

Maj. T. Macdonough Russell, president of the Russell Mfg. Co., Middletown, Conn., has enlisted in the Red Cross engineering department, and will shortly leave for France to enter the service. He has been granted leave of absence by the company for the duration of the war.

Edwin E. Taylor has resigned as advertising director of the Acme Harvesting Machine Co., Peoria, Ill., to become manager of the advertising department conducted by the Turner Mfg. Co., Port Washington, Wis., founder, machinist and manufacturer of farm tractors.

W. J. Garrity, who until recently was affiliated with the New York office of the L. S. Starrett Co., has sailed for France to become sales manager of the small tool department of Young, Corley & Dolan, Inc., 7 Rue Meyerbeer, Paris, France. The company's New York headquarters are at 115 Broadway.

Clifford F. Messinger, manager of the concrete mixer department and advertising manager of the Chain Belt Co., Milwaukee, has enlisted in the gas and flame division, chemical warfare service, of the United States army. He has been commissioned first lieutenant and is stationed at Camp Kendrick, Lakehurst, N. J.

George M. Morrow Jr., president of the Birmingham Machine & Foundry Co., Birmingham, Ala., has been granted a lieutenant colonel's commission in the United States army. He succeeded Dr. R. W. Boland as head of the Birmingham Machine & Foundry Co. plant, after the latter's death.

Daniel J. Lyons, night superintendent of the Milwaukee plant of the International Harvester Co., for the past two years, has resigned to become general night superintendent of the agricultural machinery works of Montgomery, Ward & Co., Chicago. Mr. Lyons came to Milwaukee from Freeport, Ill., in 1916.

W. T. Reimer, formerly connected with the M. J. Walsh Machinery Co., Milwaukee, and more recently an individual dealer in machine tools, now is affiliated with O. T. Webb, dealer in new and used machine tools and shop equipment, at 224 Fourth street. Mr. Webb, formerly was vice president of the O. L. Packard Machinery Co., now the Badger-Packard Machinery Co.

M. A. Mears, Chicago, has been appointed general manager of plant No. 2 of the Amalgamated Machinery Corp., Chicago, located at New Cumberland, W. Va. This property was recently purchased by the Amalgamated company from the National Steel Castings Co., and will be devoted to the production of steel castings required by the company in the building of its machines.

George S. Barton, president and treasurer of the Rice, Barton & Fales Machine & Iron Co., Worcester, Mass., is one of two new members to be added to the Worcester committee on non-war construction. The other new member is George C. Halcott, superintendent of public buildings. Mr. Barton likewise is subregional chairman of district No. 1, under Stuart W. Webb, Boston, regional advisor for New England of the resources and conversion section of the war industries board.

S. S. MacIntosh, who for the past 20 months has been identified as salesman with the Cleveland office of Manning, Maxwell & Moore Co., dealer in machine tools, cranes, etc., has resigned to become affiliated with Cyril J. Bath & Co., Cleveland, dealers in new and used machinery. In his new connection Mr. MacIntosh will cover practically the same territory in northeastern Ohio as he has been serving. Prior to going with the Manning, Maxwell & Moore Co., he was employed by the Strong, Carlisle & Hammond Co., Cleveland.

Men of the Iron Trade

Personal News of a Business Character Regarding the Men of Affairs of the Industry

ARMIN A. SCLESINGER, president of the Northwestern Iron Co., Milwaukee Coke & Gas Co., Newport Chemical Co., and other large interests owned and controlled by the Ferdinand Schlesinger interests of Milwaukee, has accepted a commission as captain in the chemical warfare service. Captain Schlesinger has been at Washington for several weeks, acting in a supervisory capacity in chemical manufacture. His brother, Harry J. Schlesinger, vice president and treasurer of the various Schlesinger corporations, was commissioned a captain in the ordnance department several months ago.

James Prince has resigned as treasurer of the Curtiss Aeroplane & Motor Corp., Buffalo.

A. B. Davenport has resigned as manager of the Sharon, Pa., plant of the Savage Arms Corp.

Victor E. Knecht, Cincinnati, has been made superintendent and foundry manager of the Van Wert Foundry Co., Van Wert, O.

Samuel T. Harleman, Mauch Chunk, Pa., has been appointed chief engineer and production manager for the Atlas Crucible Steel Co., Dunkirk, N. Y.

J. A. Campbell, president of the Youngstown Sheet & Tube Co., Youngstown, O., has left for White Sulphur Springs, Va., where he will be for several weeks.

J. Ross Pilling, of Pilling & Crane, Real Estate Trust building, Philadelphia, has entered the motor transport service. At present he is in the officer's training corps at Camp Johnston, Jacksonville, Fla.

Walter McNichols, Scranton, Pa., has been appointed factory inspector and commissioner of labor and industry of the state of Pennsylvania. He succeeds Lew R. Palmer who was dismissed by Governor Brumbaugh.

R. G. Wood, president of the Alan Wood Iron & Steel Co., Philadelphia, has been elected to succeed Gen. R. Dale Benson as director of the Pennsylvania Salt Mfg. Co. Mr. Benson retired.

Vernon Spencer has resigned his position with the Northern Iron Co., Port Henry, N. Y., effective Nov. 18, to become chemist for the Bon Air Coal & Iron Corp., at its Allen's Creek, Tenn., plant.

R. J. Duffy, formerly affiliated with the United States Radiator Corp., Detroit, and the Minnesota Radiator Co., Duluth, has been appointed foundry foreman of the Cabco Iron Works, Gowando, N. Y.

Edward C. Wells, who has been vice president and general manager of the Platt Iron Works Co., Dayton, has become affiliated with Ford, Bacon & Davis, New York City, efficiency engineers.

W. D. Tyler has been appointed acting director of the bureau of prices by the United States fuel administration, to fill the vacancy caused by the resignation of E. Q. Trowbridge, who resigned to enter the army.

J. C. Lappe, formerly associated with the Jarecki Mfg. Co., Pittsburgh, now operates as the Federal Sales Co., 244 First avenue, Pittsburgh, handling the products of the Millers Falls Co., Millers Falls, Mass.

Judge Elbert H. Gary, chairman of the finance committee of the United States Steel Corp., has been made chairman of the industries division in the United war work campaign in New York which is to cover a period of seven days beginning Nov. 11.

William G. Smith has accepted an important position in the weighing department of the American Sheet & Tin Plate Co., Cambridge, O. He has been probation officer of the Guernsey county juvenile court since February, 1915.

R. H. Angell has been appointed fuel administrator for Virginia by Fuel Administrator Garfield, to succeed H. F. Byrd, who resigned to enter military service. Mr. Angell is a banker and business man of Roanoke, Va., where he has served as local fuel administrator.

E. McL. Benedict, who has been general superintendent of the Leaside Munition Works, near Toronto, Ont., has been appointed general manager of the West Ganson street branch of the Jackson Munitions Corp., of Jackson, Mich., where a new type of shell, the 155-millimeter, is being made. Mr. Jackson was born near Brantford, Ont., and was graduated from the engineering school of McGill university, Montreal.

L. E. Schumacher has been promoted to the position of works manager of the Krantz Mfg. Co., Brooklyn, N. Y., a subsidiary of the Westinghouse Electric & Mfg. Co. For the past eight years, he has been chief inspector for the Westinghouse company.

Daniel N. Bates, traffic manager in New England of the American Steel & Wire Co., has been elected president of the Worcester Traffic association, Worcester, Mass., recently organized by traffic men and shippers representing industries of that city.

T. H. Symington, head of the T. H. Symington Co., Rochester, N. Y., malleable castings, has resigned as assistant chief of ordnance, Washington, after serving about three weeks. Mr. Symington likewise is head of the Symington company's gun plant at Baltimore, the Symington Machine Corp., the Symington Forge Corp., the Symington-Anderson Co., and the Symington Chicago Corp., all doing war work. Duties in connection with these companies require Mr. Symington's attention, who states that he can render more efficient service in them than in Washington.

Fred W. Ramsey, president of the Cleveland Metal Products Co., Cleveland, is chairman of the dry campaign committee of Cuyahoga county and has helped considerably to build up the present organization. He also is director of the Cleveland Trust Co., and vice president of that city's chamber of commerce.

W. P. Mullane, who for 17 years was identified with the Republic Iron & Steel Co., and for the last five years was superintendent of its Sylvan works at Moline, Ill., has been appointed general superintendent of the Sligo Iron & Steel Co. plant at Connellsville, Pa., now owned by the Commercial Iron & Steel Corp., 42 Broadway, New York City.

B. L. Cogshall for 11 years secretary to the general superintendent of the Gary works of the Illinois Steel Co. has been appointed manager of production of United Alloy Steel Corp., Canton, O. Mr. Gogshall will have complete charge of the production, order and service departments. He is a graduate of the engineering department of the University of Michigan.

William J. Jones has been named manager of transportation for the Carnegie Steel Co., in the Youngstown district, to succeed Warren F. Perry, who recently resigned to become industrial engineer for the Brier Hill Steel Co. He has been with the Carnegie corporation for 20 years, beginning as timekeeper and working up through the transportation department.

F. W. Brooke has been made vice president of the Electric Furnace Construction Co., Philadelphia. G. H. Twose, formerly of Price, Waterhouse & Co., has been appointed secretary and treasurer. G. W. Ketter becomes chief installation superintendent. Neil Neville will assist President Frank Hodson in selling and business organization and G. L. Ashmore has been made electrical engineer.

R. F. Randolph, general superintendent of the Dominion Iron & Steel Co., Syndey, N. S., has resigned and is succeeded by H. E. Rice, formerly assistant general superintendent. Mr. Randolph returns to the United States, having been with the company since 1916. Mr. Rice, who is a graduate of the Polytechnic institute, Worcester, Mass., and a member of the American Iron & Steel institute, has been with the company since 1903.

Iron and Steel Financial News

Up-to-the-Minute Fact and Comment Collected and Sifted For Busy Readers

Mixed Trade Views on Approaching Peace

PROSPECTS for an early conclusion of hostilities have lately dominated the markets both for stocks and commodities. Sentiment continues sharply divided as to what may be expected in the way of conditions following the war. There are some people who expect sharp declines in prices and an oversupply of labor, due to the passing of the war demands and the lack of simultaneous commercial business to fill the gap. Others point to world requirements for reconstruction and replenishment as supplying the needed demands. They draw attention to the change in the financial position of the United States. The war has changed this country from a debtor to a strongly creditor nation. Before the war the United States owed over $4,000,000,000 abroad, but this indebtedness has been cut to little over $1,000,000,000, and, meanwhile, government and private loans abroad have already reached a total of between $9,000,000,000 and $10,000,000,000. This total will be increased, for after the conclusion of hostilities it is to be expected that foreign borrowings in this market will be large. Bankers point out that this balance means we shall have an annual interest income from abroad of nearly half a billion dollars. Such an income under present conditions, it is asserted, would lead to wild speculation and high prices.

The stock market has been reflecting a tendency to discount the return of peace. Following Bulgaria's surrender prices of "war" stocks broke heavily, while "peace" stocks, such as public utilities, whose business has been restricted or hampered by the war, advanced gradually. Later, the whole market ran into a vigorous advance, indicating a belief in the extremely favorable influence to be gained by the removal of the war burden on financial resources. Last week, however, the Steel Corp. reduced its extra dividend and many observers expressed belief that some of the independent steel companies would similarly shape their financial policies. This action was followed by a slump in United States Steel common, the net decline for last week being 9¼ points. Bethlehem Steel B dropped a net of 9⅜; Lackawanna, 4; Republic common, 4⅝; Crucible, 1¾; Midvale, 2⅜.

It is still too early to diagnose conditions in the iron and steel industry in the transition period from war to peace conditions. The flow of direct war steel orders shows little interruption. Many war steel contracts are expected to be cancelled with the coming of peace but the trade expects liberal treatment for expenses incurred. The railroad administration and the Emergency Fleet corporation are expected to continue orders for steel for a long time after hostilities are ended. Reports from Pittsburgh indicate that plans for the big Neville island ordnance plant will be scaled down. The government has cancelled its contract for the construction of a $16,000,000 power plant at Cheswick, Pa. It is said the Standard Steel Car Co. has been ordered to stop work on its $1,000,000 battleship floor plate contract and several other companies are understood to be receiving instructions from Washington to stop work on war orders. These are only the first of the deluge of cancellations that are anticipated shortly, provided the Germans accept the terms of the armistice just sent to Berlin. Nevertheless, there are great many people in the financial districts who are facing the future cheerfully, because of our new financial position; the world depletion of stocks; the foreign requirements for capital and commodities; and finally because the shadow of war and preparation for war will be lifted from the world, leaving all peoples to engage in constructive commercial pursuits.

Earning Rate is Lowered by High Tax Reserve

For the third quarter, 1918, net profits after reserve for federal taxes, made by the Allis-Chalmers Mfg. Co., Milwaukee, were $1,170,296. This compares with $1,883,754 for the quarter ended June 30 and with $1,072,238 for the first quarter of the year. While profits on sales were practically the same in the second and third quarters, being $2,833,766 and $2,860,296 respectively, the reduction in the net gain was caused by a larger deduction for taxes. In the quarter ended June 30, $950,000 was set aside for this purpose, whereas in the third quarter a total of $1,690,000 was reserved. The comparative quarterly account follows:

	Quarter ended Sept. 30	Quarter ended June 30
Sales billed	$9,212,292	$9,238,079
Profits	2,860,296	2,833,766
Federal taxes	1,690,000	950,000
Net	1,170,296	1,883,756

Unfilled orders on hand Sept. 30, showed an aggregate of $32,382,336 as against $30,856,361 on Aug. 31. The following is a summary of sales billed, tax reserve and net profit from month to month since the first of the year, which shows an increased rate of tax deduction with a correspondingly decreased rate of net profit:

Month	Sales Billed	Tax Reserve	Net Profit
January	$1,899,971	$ 63,000	$ 36,071
February	1,990,862	74,000	418,769
March	2,698,993	212,000	617,398
April	3,075,799	250,000	628,885
May	3,080,660	400,000	631,162
June	2,054,213	300,000	623,707
July	2,959,148	500,000	450,679
August	3,167,442	590,000	407,399
September	3,085,702	600,000	312,218

Gross is Increased

Gross business of the Ford Motor Co. of Canada for the fiscal year ended July 31, 1918, amounted to $24,608,442, an increase of approximately $800,000 over the preceding year. Net profits were $2,358,192, a decrease of $35,545. The balance sheet shows total resources of $14,281,808 on July 31, 1918, as compared with $12,510,131 on July 31, 1917, while surplus totaled $4,856,049 against $2,445,139.

Improvement of Last Half Overcomes Handicap

Severity of the weather during the first half of the fiscal year, ended Sept. 30, 1918, adversely affected the earnings of the Carbon Steel Co., Pittsburgh. A steady improvement marked the last half however and the handicap placed by the earlier and serious transportation difficulties and fuel shortages, which restricted plant operations, was somewhat overcome. For the full year, ended Sept. 30, net profits of $3,767,062 are shown in the company's financial statement. After reductions of $3,274,974 a surplus of $492,088 is left. The comparative income account follows:

	1918.	1917.
Net profits	$3,767,063	$2,244,745
Dividends paid	880,000	430,000
War contributions	21,100	15,000
Extensions, improvements	100,000	600,000
Depreciation	192,845	6,032
Income and war excess profit taxes	2,081,029	611,424
Surplus	492,088	582,290

Replacements, extensions and improvements costing $538,558 were made during the year. The company also has enlarged its forging, heat treating and rolling equipment and

has added other facilities to meet the requirements of the government. A large part of the cost of these improvements, the annual report states, will be absorbed in the cost of the materials which the company is furnishing on specific government contracts. A gas producer plant has been installed. The bonded indebtedness of the company was reduced $18,000 through the operation of the sinking fund, now standing at $306,000, while there was a reduction in the mortgage indebtedness of $40,000.

Crucible Shows Large Net for Fiscal Year

In the year ended Aug. 31, last, the Crucible Steel Co. of America and subsidiary companies earned gross profits of $19,939,226 and net profits of $13,812,128, the sum of $5,759,000 being charged off for depreciation and renewals, while interest on scrip and on the bonds of the subsidiary companies took $368,098 from the gross profits.

Disposition of the net profits was as follows: Dividends, Nos. 61, 62, 63 and 64 on the preferred stock, $1,750,000; increase in current assets, less increase in taxes and accounts payable in excess of bills and accounts receivable, $7,410,718; invested in additional property, net, $3,530,549; increase in investments and construction advances to associated companies $2,602,780; increase in assets reserved for dividend scrip redemption fund $413,312; final payment of coal land purchase, $23,000; total $15,730,359. Deducting $1,906,983 for increase in reserves and $11,248 for a decrease in taxes and unexpired insurance, etc., a total of $1,918,231, leaves $13,812,128 the amount of the net profits.

Charcoal Iron Gains

Net profits of the Charcoal Iron Co. of America, Detroit, for the quarter ending Sept. 30, were $362,113 while expenditures for new construction and additions to its plants for the same period aggregated $312,303. President Frank W. Blair, of Detroit, reports that net profits for the nine months ending Sept. 30 were $1,549,650 on $5,217,250 of preferred and $2,839,350 of common stock outstanding. Total assets are $13,343,397, of which $10,569,884 is in property account. At the end of the third quarter total surplus stood at $3,010,499 before deduction of $326,878 for dividends and making no allowances for income or excess profits taxes. Unfilled orders for pig iron for 1918 delivery amounted to 42,942 tons at an average selling price of $36.04 at the furnace and 44,260 tons at $37.60 for 1919 delivery.

To Sell Plant at Auction

The entire property of the Killen-Strait Mfg. Co., Appleton, Wis., recently placed in the hands of a receiver on petition of creditors, will be offered for sale at public auction at the plant on Dec. 11, at 10 a. m., under the direction of Charles L. Marston, Appleton, receiver. The property consists of two acres of land, a main brick shop, 64 x 200 feet, containing a machine shop and offices, with a foundry, tin shop, blacksmith shop with carpenter shop attached and a frame warehouse, 30 x 100 feet. The machinery and equipment includes three lathes, two radial drills, two drill presses, one gear cutter, one milling machine, one drop forge press and other items, forming a full equipment needed for the manufacture of farm tractors and other farm machinery, or a general foundry and machine shop business. The plant is located on the Chicago & Northwestern railroad.

To Dissolve Partnership

The firm of Banning, Cooper & Co., Ltd., Pittsburgh, brought into the limelight as a result of the arrest of Charles F. Banning, who was chairman of the board of directors of the company, on a charge alleging violation of the espionage act, is to be dissolved. A meeting of the partners and stockholders of the company was held on Oct. 5, and this course was unanimously decided upon and Banning's former partners, S. G. Cooper and George L. Claypool and their attorney J. Merrill Wright were chosen as liquidating trustees. It is understood that Mr. Cooper and Mr. Claypool, following the completion of the liquidation, will form a new company. Mr. Banning's name has been stricken from the doors of the company's offices here and also from the firm's letterheads.

Financial Crop Ends

The Heyward Steel Co. plant at New Cumberland, W. Va., has been purchased by the Amalgamated Machinery Corp. of Chicago.

* * *

Directors of the American Metal Co., New York, will hold a meeting Nov. 22, for the purpose of acting on a proposal to dissolve the company. Recently the government took over about 49 per cent of the stock of the company as this proportion was owned by enemy aliens.

* * *

Retiring directors of the American Locomotive Co. were re-elected at the annual meeting last week. President W. A. Fletcher said the company had enough orders on its books to carry it well into 1919. He announced the Italian government had just closed for 150 locomotives, to cost $5,000,000.

* * *

Incorporated at $50,000, under the laws of New York state, the Poughkeepsie Cutlery Works Inc., Poughkeepsie, N. Y., will manufacture open blade and safety razors as well as a general line of cutlery. Its new building is modern and sanitary in every respect, being well lighted and ventilated. It is of brick and cement construction.

* * *

The Graton & Knight Mfg. Co., Worcester, Mass., has issued $1,900,000 worth of second preferred stock, of which $1,000,000 will be used to take care of the same amount of three-year notes, convertible for stock, and the balance of $900,000 will be kept in the treasury. The company's participation in the fourth Liberty loan amounted to $1,115,700.

More Toluol

Released for November Commercial Use—Benzol Demand Still Heavy

New York, Nov. 2.—The war industries board has released toluol for commercial consumption during November on a somewhat more generous scale than in recent months. This action is due to decreased requirements of nitrators, resulting largely from the recent fire at the Canadian government plant at Trenton, Ont.

The huge demand for benzol which set in about three weeks ago continues unabated and heavy business has been transacted during the past week. Most of the current sales continue to call for spot and nearby deliveries, although current prices are regarded as low under present conditions. Current developments with regard to the outlook for peace keeps them from placing any long time contracts. The market on pure benzol continues at 22 to 27 cents per pound. In phenol, exporters continue to wait for the war trade board to take action on large quantities which are wanted for shipment abroad. In the meantime the market continues to be quoted at 42 to 44 cents per pound.

The navy department has released small quantities of solvent naphtha to a few commercial consumers, but these interests are to receive this material only temporarily until a substitute for this product is available in quantities. Such a substitute has been produced and samples of it now are being tried out but none is yet available for the market.

A few naphthalin contracts for delivery over the coming season were placed during the past week. These were done at around 10 cents per pound for flake naphthalin,, and 12½ cents per pound for balls.

Coke Oven By-Products

Spot	
Per Gallon at Producers Plant	
Pure benzol	$0.22 to .27
Toluol (on sales sanctioned by government) (tank cars)	1.50
Toluol (on sales sanctioned by government) (drums)	1.55
Toluol (for government)	1.50
Solvent naphtha	no market
Per Pound at Producers Plant	
Phenol	$0.42 to 0.44
Naphthalin, flake	0.10
Naphthalin, balls	0.12½
Per 100 Pounds at Seaboard	
Sulphate of ammonia (to fertilizer trade)	$4.50 to 4.75
Contract	
Pure benzol	nominal
Toluol	no market
Solvent naphtha	nominal
Per Pound at Producers Plant	
Phenol	nominal
Naphthalin, balls	$0.12½
Naphthalin, flake	0.10
Per 100 Pounds at Seaboard	
Sulphate of ammonia (for commercial use)	no market
Sulphate of ammonia (for government)	$4.50

Obituaries

HARRY WRIGHT, president of the Ohio Steel Foundry Co., which operates foundries at Lima, Bucyrus and Springfield, O., died in the Crawford county, Ohio, hospital without regaining consciousness after an automobile accident Oct. 31. Mr. Wright was riding from Bucyrus to Lima to investigate an accident in the plant there in which two men lost their lives that morning as a result of the falling of a big steel stack. In an effort to make speed, the chauffeur did not notice a Standard Oil Co. motor tank wagon which turned on to Oceolo road. The chauffeur and Frank W. Huson, superintendent of the Bucyrus plant were injured but Mr. Wright was thrown against the front seat of the car and when picked up was breathing but unconscious and practically pulseless. He died within 20 minutes after reaching the hospital. Mr. Wright was 54 years old and was one of the best steel men in the United States, being identified with that industry for more than a quarter century. He was born and reared in Oil City, Pa., and later removed to Sharon, Pa. While in Sharon he obtained much steel plant experience and was promoted to an important official position in connection with one company there. In 1891 he was general superintendent of the Sargent Co., Chicago, and seven years later became general manager of the Falk Co., Milwaukee. In 1903 he removed to Columbus, to become manager of the Buckeye Steel Castings Co., and later was made manager for the eastern district of the American Steel Castings Co. About 11 years ago, he formed the Ohio Steel Foundry Co., a million dollar organization, with headquarters at Lima, which several years ago absorbed the Bucyrus Steel Castings Co., Bucyrus, O., and built a plant at Springfield.

James A. Lentz, assistant master mechanics for the Mesta Machine Co., Pittsburgh, died at his home in West Homestead, Pa., Oct. 30. He was 30 years old and had been connected with the Mesta company for several years.

Albert K. Kraatz, vice president and treasurer of the Wausau Foundry Machine Co., Wausau, Wis., died Oct. 27 after an illness of six days with pneumonia. He was born April 1, 1883, at Milwaukee, and moved to Wausau in 1903, becoming associated with the company shortly afterward.

John G. Nichol, treasurer of the Nichol-Straight Foundry Co., Chicago, died Oct. 20 in St. Luke's hospital of pneumonia which followed an attack of influenza. He learned the foundry business in Urbana, Ill., but for the past 25 years had been associated with foundries and machine shops in Chicago.

Robert Leland Prentice, partner and treasurer of Midgley & Prentice, Inc., New York, iron and steel brokers, died after a short illness of pneumonia, Oct. 16. He was born in Worcester, Mass., in April, 1888, and has been actively identified with the sale of iron and steel practically all of his business career.

Bishop White, vice president of the American Chain Co., Bridgeport, Conn., and treasurer of the Pratt & Whitney Co., Hartford, Conn., died at his home in the latter city, Oct. 28, of pneumonia, aged 33 years. He was a graduate of Yale and prominent in banking life in Hartford and New York.

Major Henry C. Evans, for 32 years selling agent for the Lorain Steel Co., subsidiary of the United States Steel Corp., died Oct. 8, at his home in Brooklyn, aged 59. Major Evans served in the Pennsylvania state militia for eight years. He was born in Pittsburgh and at an early age began working in his father's plant in that city.

Edwin J. Potter, for the past four years owner and manager of the Hopkins Machinery Co., Bridgeton, R. I., died at his home in that town, Oct. 18, aged 34 years. He formerly was connected with the B. F. Smith Construction Co., Providence, R. I., and supervised the building of many large mills in New England and New York state.

George E. Price, formerly a member of the sales force of the Pittsburgh office of the Youngstown Sheet & Tube Co., died at Camp Lee, Petersburg, Va., on Oct. 3. He had reached the rank of sergeant and recently had been ordered to an officers' training school to qualify for a commission. Death was due to pneumonia following an attack of Spanish influenza.

William A. Groetsch, aged 31, sales manager of the Reineke-Wagner Pump & Supply Co., Pittsburgh, and a director of that company, died of pneumonia at the South Side hospital, Oct. 30. Mr. Groetsch suffered a slight scratch on his life hand on Oct. 19, from which blood poisoning set in. He was taken to the hospital on Oct. 26 and the next day developed pneumonia.

Alexander T. Dougherty, aged 87, who had the distinction of having built the first oven in the Connellsville coke regions, died last week at his home in Hopwood, near Uniontown, Pa. Mr. Dougherty was a veteran of the Civil war and had traveled extensively, having crossed both the Atlantic and Pacific several times. He was one of the gold seekers in the Far West in 1849.

Persifor Frazer Smith, who retired from active business in 1906, died recently at the age of 69. Mr. Smith was born April 1, 1849. He was connected with the Pennsylvania railroad from 1865 to 1880, then until 1900 he was president of the Wellsville Plate & Sheet Iron Co., Wellsville, Ohio, and from 1900 to 1906 was manager of the W. Dewees Wood department of the American Sheet & Tinplate Co.

Ralph Archibald Walters, superintendent of construction of the Neville island plant of the United States Steel Corp., died in Pittsburgh, Oct. 20, aged 34 years. He was a native of Worcester, Mass., and a graduate of Worcester Polytechnic institute, class of 1906. For 12 years he was with the American Bridge Co., of which he was assistant manager, with headquarters in Pittsburgh, until drafted recently by the United States government.

Abraham K. Stauffer, aged 80, a pioneer coke operator died at his home in Scottdale, Pa., Oct. 20, of diseases incident to age. For many years Mr. Stauffer was engaged in business with his father, the late John M. Stauffer, and later with his brother, the late Joseph R. Stauffer, under the firm name of J. R. Stauffer & Co. in the operation of the Dexter coke works and other coking and coal operations. For a number of years he also was president of the Scottdale Foundry and Machine Co.

Frank I. Parker of the Cutler-Hammer Mfg. Co., Milwaukee, died at his home in that city on Oct. 18, at the age of 36. His death was due to pneumonia contracted through Spanish influenza. Mr. Parker was graduated from the university of Wisconsin in June, 1906 and in July became engineer in charge of production in the magnet and clutch department of the Cutler-Hammer company. His early work was with lifting magnets, made by this company being responsible for many of the exclusive features of these magnets as well as designing several of its magnet and motor-operated brakes. Since 1911, Mr. Parker has had charge of sales service work on clutch department products. He was made an associate member of the American Institute of Electric Engineers in 1910 and in 1913 became a member.

William A. Lydon, president of the Great Lakes Dredge & Dock Co., and well known as a yachtsman, died Oct. 28, at his home in Chicago after an illness of six months. He was born in Buffalo, Nov. 9, 1863, his parents removing to Chicago two years later. He was graduated from Lehigh University as civil engineer and was one of the party of engineers making the preliminary survey for the Chicago drainage canal. He formed a partnership with Frew Drews as Lydon & Drews, which built cribs and water tunnels in Chicago and other important engineering works. The Great Lakes Dredge & Dock Co. was organized by Mr. Lydon and has done work in practically every port on the Great Lakes. He was a member of the American Society of Civil Engineers, the Western Society of Engineers and several Chicago clubs.

Machine Men Watch Theatre of War

Much War Business Placed in October But Overseas Developments Compel Consideration of Tool Market Possibilities in Peace Times—Little Alarm Felt Over Prospects Despite Shipping Board's Cancellation Move

FAST moving events on the various battlefronts have made of October an epoch-marking month. Tool builders have concentrated on quantity production while history has been made. The unconditional surrender of Bulgaria and Turkey, followed by the complete overthrow of Austria-Hungary presaged an early forced acceptance by Germany of the terms reached at the Versailles conference. With the end of hostilities made more of a near future probability than was considered possible a few weeks ago, thoughts of equipment builders and dealers have taken an after war trend. Early in the month many machinery dealers scouted the theory that the war would soon end. Latterly however they have concluded that a sudden peace is possible and with it would come grave problems of readjustment. That which became a large factor to inspire after war deliberations was the recent cancellation of many millions of dollars worth of equipment by the Emergency Fleet corporation. A great deal of war business has been placed however, although not on the scale which obtained a couple of months ago. Tool business in October chiefly was in small lots and with two or three exceptions no large lists were issued. Machines were bought to piece out equipment in an effort to bring production up to an efficient maximum. October's aggregate of machine tool sales was surprisingly large nevertheless, although not so large as September's.

Shipbuilding Expected to Take Many Tools

BEFORE the shipping board's cancellation of a large amount of equipment for the Alameda yard of the Bethlehem Shipbuilding Corp., the New York Shipbuilding Co., and the Perth Amboy marine engine plant of the Barber Asphalt Paving Co., no small number of machine tools and cranes were purchased for shipyards. Shipbuilding is expected to offer an avenue for the disposal of this sort of equipment for some years after the conflict ceases. Many replacement machines soon will be required. The American Shipbuilding Co., Cleveland, which bought many tools in August and September, bought a few in October and announced it was preparing another large list. The Pusey & Jones Co., issued a small list and made several purchases for its Wilmington, Del., plant. Plate and angle shop equipment was asked for by W. H. Gahagan, Inc., Arverne, L. I., N. Y. A similar line of punching and shearing tools as well as cranes and hoists was ordered by the Robert Dollar Co., New York, for shipment to a Chinese shipyard which has a contract from the Emergency Fleet corporation. Other shipbuilding companies to issue crane requirements and small tool lists were the Newport News Shipbuilding & Dry Dock Co., Newport News, Va., for its Richmond, Va., yard; American International Shipbuilding Corp., Hog island, Pa.; Lake & Ocean Shipbuilding Co., Cleveland; Sun Shipbuilding Co., Chester, Pa., and the Wm. Cramp & Son Ship & Engine Building Co., Philadelphia.

Much Shell Business Placed and Pending

WITH the placing of many shell orders and with others pending, no let-up of the government's war effort was apparent. Tool builders in the Cincinnati district were asked to show what they could do with an order for 4000 lathes of 20 to 24-inch swing and 6 to 8-foot beds for shell work. This order was held up but one for about 100 36-inch lathes was placed by the ordnance department. Many districts have been awaiting definite information about the government's orders for 33,000,000 semisteel shells. Much second hand equipment was ordered in Chicago to produce projectiles of this character. The Rathbone, Sard & Co., Aurora, Ill., found it necessary to install special machinery to turn out 2000 135-millimeter shells daily on its contract for 6,000,000. The Symington-Chicago Corp., Chicago, came into the market for lathes, milling machines and drill presses. A list of about 300 tools was issued by the American Multigraph Co., Cleveland, which took over the Ford assembling plant there to produce time fuses. The International Harvester Co., Chicago and Akron, O., asked for lathes, knurling machines and other tools. The Cribben & Sexton Co., Chicago, which formerly produced stoves, had to buy machinery with which to turn out shells. The American Brake Shoe & Foundry Co., Erie, entered the Cleveland market for 30 milling machines, 20 screw machines, etc.

Gun Program Necessitates Tool Purchases

AN additional appropriation of $1,100,000 was asked for by the ordnance department to extend the artillery program. Many orders for gun-boring and turning lathes went to companies which hitherto have not built machine tools. The United Cast Iron Pipe & Foundry Co., Philadelphia, is at work on 10 85-inch boring and turning lathes for the gun relining plant in France. The S. Morgan Smith Co., York, Pa., has an order for 16 120-inch machines of that type. Three lists of tools were issued by the Rock Island arsenal, Rock Island, Ill., one for about $200,000 worth of tools. A list of 82 miscellaneous tools was issued by the Midvale Steel & Ordnance Co., for its 16-inch howitzer plant at Nicetown, Pa. A list of tools purchased for the navy yard at Washington totaled $192,000. Despite the opposition in congress to an increased expenditure for Neville island gun plant, rumors come out about orders placed for its equipment.

Aircraft a Peace Time Probability

AIRPLANES are destined to play an important part in the resumption of normal business when the war ends. In the meantime aircraft production for war effort is reaching a satisfactory volume. The Martin battleplane was accepted by the government in October. Parts for it are made in Cleveland and assembled at the plant of the Glen L. Martin Co., that city. Present plans call for its production in large numbers at other airplane plants and this is expected to create some tool needs. The Martin company has issued a large list and has made several purchases. The government's order that airplane plants buy no used machinery caused a little alarm in the dealer's ranks but this matter is being straightened out. The Willys-Overland Co., Toledo and Elyria, O., issued a fair sized list of lathes, drilling and milling machines, boring mills and grinders to produce 8 and 12-cylinder Liberty motors. The Liberty Motor Co., Detroit, asked for about 73 machines.

Pennsylvania Issues Many Inquiries

LARGE inquiries for machines for various shops of the Pennsylvania railroad make almost weekly appearances. Much buying of both tools and cranes has been done in recent weeks by that road. The Nickel Plate also has issued several inquiries for small lots of tools, purchasing a few in Cleveland. The Delaware, Lackawanna & Western, the Erie, the Boston & Maine, the Baltimore & Ohio, the Pittsburgh & Lake Erie, the Bessemer & Lake Erie, all are roads which have issued inquiries and placed orders in the past four or five weeks.

Tank Needs Create Tool Market

TANKS, trucks and tractors called for a large share of machine tools during the past few weeks. The government has ordered a cut in farm tractor production and the Hamilton, O., project of Henry Ford & Son, Dearborn, Mich., is reported indefinitely postponed. Their Dearborn plant is being enlarged to produce large numbers of tanks. Contracts for tanks placed in Cleveland caused the issuance of several lists and on these some purchases were made. The Holt Mfg. Co., Peoria, Ill., also issued lists in both Chicago and Cleveland and is to buy tools to total $3,000,000. Axles for trucks are being produced in large numbers necessitating many tool purchases. The Columbia Axle Co., and the Timken-Detroit Axle Co., both issued lists.

Call For Tools As War Clouds Lift

Approaching Peace Sends Hurried Requests for Equipment—Dealers Asked by Wire to Rush Deliveries—Thoughtful Glances Ahead to Future Brings Confidence That Demand Will Take Up Any Slack of War

DESPITE the prevailing and spreading belief that Germany cannot hold out much longer against the allies, machine tool business of the week has had a distinct application to war work. A tendency to hasten shipments is noticed and telegraph inquiries are numerous. Change is a matter of hours however, and another week may find equipment dealers and builders endeavoring to divert their product to peace time pursuits, to which many have been giving some little attention. Those who have, see no cause for fear, since they see looming up ahead, vast tool needs which it is believed will tax builders' capacities. All admit, however, the possibility of a trying few weeks until readjustments are made and difficulties ironed out.

By stopping work on the Alameda shipyard of the Bethlehem Shipbuilding Corp., and other accessory plants, the Emergency Fleet corporation superinduced expectations in many quarters that other governmental cancellations were to follow. These fears have not materialized to date and by some are not expected to be succeeded by facts. Just what adjustments the shipping board will make, are awaited with interest because of their relation to other post war settlements. One builder whose electric cranes were to be shipped to the abandoned projects has been allowed to go ahead with work scheduled for November, it being inferred that the equipment will be reallocated later. But for that he would have had to shut down for four or six weeks. Greater difficulty is anticipated in effecting an adjustment with a builder of tower twirlers who had completed 80 or 90 per cent of his contract.

Railroad buying slackened in the Ohio territory but the Pennsylvania road made extensive purchases in the east, while a limited number of tools are wanted by the Rock Island and the Chicago, Milwaukee & St. Paul roads in Chicago.

More buying would be done in the east, it is thought, if the deficiency bill were passed. Doubtless many shell orders are being held up awaiting the signing of this measure. The Rock Island arsenal Rock Island, Ill., is equipping a shop to make small tools and the Watervliet arsenal, Watervliet, N. Y., has bought several special machines in Cleveland, asking for immediate shipment. It also purchased two large gantry cranes. An Ohio manufacturer producing shell adapters sent an inquiry to Chicago for 50 thread millers. While some shellmaking tools are being ordered, many munition plants are inclined to make present equipment do until they are sure there will be no cancellations.

Dealers in Detroit are filled up with orders and state the demand is greater than the supply. They are preparing for the greatest rush in the history of their business, after the war. The Ford Motor Co., has orders ahead for 250,000 to 300,000 pleasure cars and other automobile companies are proportionately behind. These are expected to want tools to an unprecedented degree, since the strenuous work demanded of equipment at the present time makes necessary their replacement for post-war business.

Deficiency Bill's Passage Means Tool Business

CONSIDERABLE buying in the eastern machine tool market continues to be held up, due to delay attending the passage of the $6,000,000,000 deficiency bill by congress. Many manufacturers, anticipating shell contracts and certain other war work, state that they have submitted to Washington data concerning the equipment required, but that nothing further has developed owing to the inability of the government officials to take action until funds have been appropriated. A development of the past week has been an increased volume of buying by the railroads, the Pennsylvania being particularly active. Other demand, arising from miscellaneous sources, has been of only fair proportions.

Undoubtedly, the big factor in the present situation of the machine tool market is the looming possibility of an early peace; and conjecture is being heard on every hand as to developments likely to follow. That these comments are none too optimistic in their connection with after war conditions in the machine tool market is reflected by the increased volume of equipment now being offered for sale out of warehouses in New York and its vicinity, equipment which in some cases has been held for many months. One particularly large lot of used machinery is included in the equipment now being offered.

Adjustment by the Emergency Fleet corporation of claims resulting from the cancellations of equipment for new yard and accessory plant projects, is being viewed with much interest by the machinery trade as a whole, owing particularly to its significance in relation to post war settlements. As stated last week, the projects affected include the Liberty yard of the Bethlehem Shipbuilding Corp., Alameda, Cal., the marine boiler plant of the Barber Asphalt Paving Co., near Perth Amboy, N. J., and the extension at the Camden, N. J., yard of the New York Shipbuilding Co. Contracts involve many millions of dollars, and settlements can be so effected as to greatly reduce this amount. Equipment on which work has not as yet been started represents few, if any, claims for adjustment. Furthermore, the manufacturers, with the co-operation of the Emergency Fleet corporation, will make every effort to apply equipment completed or else under construction to other orders. In the instance of machine tools, it is understood much in this way can be done. In the case of cranes and other special equipment, however, the problem of adjustment is more difficult. One builder of electric cranes, upon being ordered to stop all work on equipment for one of the projects abandoned, was confronted with the possibility of having to shut down his entire plant for a matter of a month or six weeks. His capacity was being given over entirely to this work, and material for other orders was not due to arrive for several weeks. In this instance, the Emergency Fleet corporation advised the builder to go ahead and complete the work scheduled for November, on the provision that proper arrangements be made for storing the equipment. It was inferred that the cranes might be reallocated later, although certain changes in the equipment might necessarily have to be made.

Another crane builder, who had an order for more than 30 tower whirlers, is said to have completed from

The Sign of Safety
AGATHON STEELS
Whoom - - whoom - - BANG go the "Archies" of the Huns but the Yank pilot doesn't turn a hair.
He's out for information perhaps, or on a bombing mission, and he means to get what he's after, in good old Yank fashion!
And as he nose-dives, side-slips, loops or climbs to cheat the shrieking shrapnel, his machine is just as staunch as himself—every bit as steady and dependable. For it's "Yank" too, and in its never faltering heart is the never-say-die spirit of AGATHON Alloy Steel.
THE
CENTRAL STEEL CO.
MASSILLON, OHIO
Detroit Office, 326-27-28 Ford Bldg., F. Walter Guibert, District Rep.
Cleveland Office, Hickox Bldg., The Hamill-Hickox Company, District Rep.
Chicago Office, 1370 People's Gas Bldg., 122 So. Michigan Blvd., C. H. Beach, District Sales Manager
Philadelphia Office, 603 Widener Bldg., Frank Wallace, District Sales Manager
Syracuse Office, 621 University Block, T. B. Davies, District Sales Manager
Export Dept.—20 Broad St., New York.
AGATHON

80 to 90 per cent of his contract. Provided this report is authentic and the Emergency Fleet corporation holds to its present avowed policy of confining its program to only the more efficient yards now in operation, the adjustment in this case will be large, for the cranes are designed essentially for shipbuilding purposes. It is reported that work of expanding the yard of the New York Shipbuilding Co., Camden, N. J., will be carried out by the company itself, although perhaps not on the scale originally planned.

Included in the few inquiries coming out for electric cranes is one from the Watervliet arsenal, Watervliet, N. Y., for a 200-ton gantry and a 70-ton gantry.

Chicago Receives Ohio Inquiry for 50 Machines

NOTICEABLE slackening of demand for machine tools on the part of manufacturers not engaged on essential work is noted. The Rock Island arsenal is equipping a shop for the manufacture of small tools, including cutters, reamers, hobbs and other devices of this sort. The equipment for this plant is the usual line of toolroom machines. The arsenal is also installing machines and other equipment for light sheet metal work. This sort of equipment is not usually handled by machine tool sellers but in this instance they have broadened their field to include what the arsenal needs. An Ohio concern with a contract for shell adapters, a device for matching one size of timing device to another size of shell, is inquiring for 50 thread millers. There is also a demand for thread millers by concerns manufacturing shell boosters. Small lists have just been issued by the Rock Island and Chicago, Milwaukee & St. Paul railroads. Each calls for a limited number of tools which are said to be much needed. The Interstate Iron & Steel Co., Chicago, will build a machine shop at its plant in the Calumet region. The Mid-West Engine Co., Indianapolis, is building an engine plant. The International Lead Co., East Chicago, Ind., will build a power house and pumping station. The American Manganese Steel Co. is making plans for a steel foundry at Oakland, Cal.

Cleveland Business Has War Character

FORCED to consider after-war problems by the character of the war news, Cleveland dealers are giving more or less time to the conditions they will face when the conflict ends. It is true, however, that practically every piece of business closed and almost every inquiry received has a war character, since the equipment desired is for direct or indirect government work. The future is faced with confidence and while the recent action of the shipping board in cancelling many orders for equipment, made some wonder if it was the forerunner of an avalanche of cancellations, no such development is anticipated. The services of the war industries board and the War Finance Corp., and other governmental agencies are expected to forestall such a blow to the country's prosperity. It is pointed out that the great number of plants turning out munitions are operating on a 24-hour day basis; the vast amount of equipment they had to purchase, it is believed, is receiving harsh treatment at the hands of unskilled operators, and much of it cannot be used for peace time commercial work. Shipyards, tractor plants and automobile companies, are expected to furnish a sufficient demand to keep tool builders and dealers active for many months.

The market in recent weeks has been quiet in comparison with its feverish character of a few weeks back. The past week it was quickened, however, by many hurry up calls for shipment against orders placed and by some new rush orders. A large order for special machines for the Watervliet arsenal, Watervliet, N. Y., was placed in Cleveland, with instructions to ship this week. Another order for two milling machines, each weighing over 3000 pounds went to a point outside of Boston, as baggage, personally conducted by an officer of the government. The American Multigraph Co., Cleveland, is making further efforts to locate its tool needs on the list of 300 recently issued. The production division of the ordnance department is asking for three milling machines for shipment to a Pennsylvania point. The following tools are desired for shipment to Illinois: one 32 to 40-inch swing engine lathe with 14 to 18-foot bed, one horizontal boring mill with 3¼-inch spindle, 52 to 64 inches between housings, one 2¼ x 20-inch turret lathe, one 2¼-inch hand screw machine, one slotter with 16 to 20-inch stroke, one slab miller, table 18 inches wide and one 5 to 6-foot radial drill. One 48-inch x 48-inch x 12-foot planer with four heads, belt driven is wanted for shipment to Massachusetts, as well as four 48-inch x 48-inch x 20-foot planers each with four heads, motor driven. The National Tool Co., Cleveland, is in the market for a milling machine. The Elyria Machine Co., Elyria, O., has received orders to double its capacity and is buying equipment in Cleveland. The South Chester Tube Co., Chester, Pa., pipe manufacturer, wants a shear that will shear bars 3¾ to 8 inches wide and ⅜ to 1 inch thick. The Globe Machine & Stamping Co., Cleveland, is putting up an addition but prefers to obtain its equipment through the government's procurement division. The Garford Motor Truck Co., Lima, O., is putting up an addition and has bought a few machines in Cleveland. The American Forge & Machine Co., Canton, O., found it necessary to purchase approximately $50,000 worth of machinery to work out its large contract for trench mortar parts. Railroad and shipyard buying practically is at a standstill, although the American Shipbuilding Co., buys one or two machines every week and the railroad issue small inquiries from time to time. The American Shipbuilding Co., now wants a 2-inch pipe threading machine, and the Nickel Plate railroad is needing tools for Conneaut, O.

Dealers in other districts are sending calls for help to Cleveland dealers in their effort to keep pace with the demand. One inquiry of this kind came from the Laird Machinery Co., Buffalo, for one 2 to 6-inch pipe cutting and threading machine, one ¼ to 1½-inch bolt threader, one 1½ to 2½-inch bolt cutter, two punches with 36-inch throat and one with 48-inch throat, one horizontal punch, one 48-inch x 75-foot stack, one 1-inch bolt header, one 1-inch bolt cutter, one 4-foot bending roll for ¼-inch plates, one belt hammer for 3 to 4-inch rounds, one No. 5 shapeless separator, motor driven, one No. 1 Cincinnati universal milling machine, and one used 24, 26 30 or 32-inch swing lathe with 10 to 12-foot bed. One 12 x 36-inch Cincinnati plain grinder and three Kempsmith plain milling machines are asked for by Ogden R. Adams, Rochester, N. Y., and P. Pettler & Son, Beaver Falls, Pa., sends an inquiry for one new or used 250-pound belt driven hammer and one No. 3 or 4 universal or plain milling machine with dividing head. The two last dealers ask for telegraphed details.

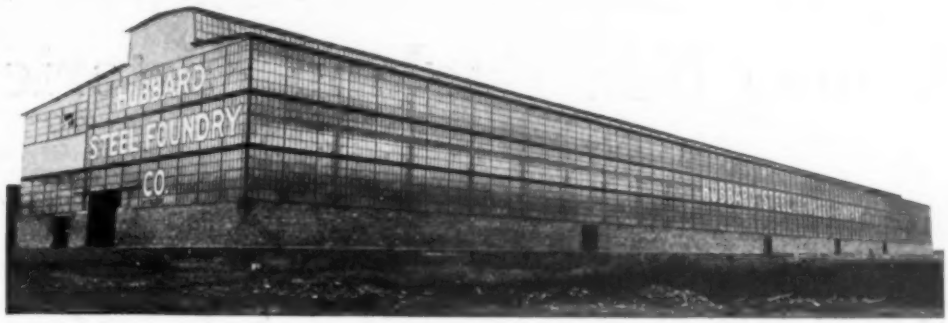
Pittsburgh Awaits Further Cancellations

STOPPING of the work on the Alameda, Cal., shipyards of the Bethlehem Shipbuilding Corp. has created fears that other governmental projects either may be halted or curtailed and much speculation is current in the Pittsburgh machinery and machine tool trade as to whether or not the Neville island ordnance plant will go through to completion as originally planned. The steel corporation continues to specify against the requirements of this plant, but no further contracts have been let since those recently announced. Activities on the island at the moment center around the open-hearth furnace plant, the requirements for which have been largely placed. No cancellation of orders has been heard of; indeed, so far as surface conditions indicate, there is nothing to suggest that the plant will not be completed. Continued inquiries from the Pennsylvania lines west for shop equipment are coming out. While the big government order for semisteel shells is not far from the contracting stage, machine tool needs in connection with it have not yet taken definite shape. The prices offered by the government for these shells are said to be unattractive and it is stated that few of the manufacturers interested in the business have plants and organizations of a character that will secure the recommendation of the ordnance department. It looks as though little of this shell order would be placed with Pittsburgh district companies. Conditions with regard to deliveries are unchanged, short dates being offered only on small lines, as builders generally are heavily sold up. Plants engaged on munitions are said to be inclined to make present equipment do until they are certain that no cancellations will be received.

Detroit Expects Rush With End of Conflict

MACHINERY and tool business in Detroit continues practically on a 100 per cent war orders basis. Every order is for direct or indirect war work. At the same time, however, there have been a number of inquiries for peace time requirements. Detroit dealers are sold on some machinery and tools for a year ahead. The demand is far greater than the supply and this

WAR with ROLLING MILL JIM



Say Fellows!—I've been so busy haven't had time to give you any new dope. It's "UNCLE SAM" first, last and all the time these days. Here's to beat the Hun!

So long,

Rolling Mill Jim.—

Hubbard Steel Foundry Co.

EAST CHICAGO, IND.

All Kinds of Iron and Steel Rolls and Steel Castings.

combined with the shortage of skilled workers is having a tendency to keep production below the desired point. The machinery trade here is preparing for the greatest rush of business ever experienced in the city's history with the end of the war. Manufacturers of motor cars especially will be in the market to an unprecedented degree in an effort to get back into volume production of passenger cars as soon as possible. The Ford Motor Co. alone has between 250,000 and 300,000 unfilled orders for cars. Other plants are proportionately behind.

New Construction and Equipment

Concise and Timely Business Building Opportunities from the Field of Industry

Among New England Factories

PORTLAND, ME.—The Detroit Range, Boiler & Steel Barrel Co. has been incorporated to make range boilers, steel tanks, barrels and metal vessels, with $1,000,000 capital, by R. L. Johnson, E. Connor and A. B. Burnham.

ATHOL, MASS.—The Union Twist Drill Co. is building a brick, 2-story, 60 x 30-foot addition.

BARRE, MASS.—The C. G. Allen Co., iron founder, plans to rebuild its plant which recently was damaged by fire.

BOSTON—The B. V. F. Mfg. Co., Inc., has been incorporated to make machinery with $25,000 capital, by Michael F. Shaw, Alvah G. Sleeper and C. F. Hughes.

BOSTON.—The Evatt Construction Co. has been awarded a contract by the government for the erection of a brick, 206 x 256-foot addition to the machine shop and foundry at the Charlestown navy yard.

BOSTON—The Ballard Oil Burning Equipment Co. has been incorporated with $25,000 capital, by Arthur H. Ballard, Ralph M. Bragdon, Melrose, Mass., and George B. Farnum, Melrose, Mass.

SPRINGFIELD, MASS.—The Boston & Albany railroad has completed plans for a brick, fireproof, 3-story, 114 x 401-foot passenger and freight station, to cost $2,500,000.

WESTFIELD, MASS.—The Vitrified Wheel Co. has purchased a tract, 71 x 150-feet, with buildings thereon, adjoining its plant, for future expansion.

NEWPORT, R. I.—The government is contemplating building an airplane station, to cost $400,000, at Fort Adams, R. I.

BRIDGEPORT, CONN.—Hubbard & Harris, Inc., has been incorporated as an engineer with $50,000 capital, by George A. Bradford, E. M. Blake and W. E. Parker.

DANBURY, CONN.—The Metal Ball Co. has been incorporated with $50,000 capital by W. Leroy Ketchum, George W. Smith and A. K. McMahon, all of Bridgeport, Conn.

HARTFORD, CONN.—The Pratt & Whitney Co. will build a brick, 1-story, 50 x 210-foot extension to its foundry.

HARTFORD, CONN.—The Bennett Furnace Co. is having plans drawn for 1-story, 40 x 70-foot factory addition. Ford, Buck & Sheldon are engineers in charge.

HARTFORD, CONN.—Bids are being received by Pratt & Whitney for the erection of a $20,000 foundry extension, 1-story, 50 x 120 feet. Harris & Richards, Philadelphia, are engineers in charge.

NEW BRITAIN, CONN.—Fire in the celluloid vault and other buildings of Landers, Frary & Clark, Oct. 30, caused $15,000 damage.

NEW LONDON, CONN.—The Oscawana Building Co., New York, has been awarded the contract by the navy department for the erection of a barracks and a boiler house.

STAMFORD, CONN.—The Waterside Mills, owned by Fred H. Gillispie, were damaged by fire, Oct. 26, with a loss of $100,000. The power plant is a total loss.

WATERBURY, CONN.—The Ideal Clock Co. has been incorporated with $10,000 capital by W. E. Thoms, A. E. Ells and H. J. Beardsley.

Along The Atlantic Coast

ALBANY, N. Y.—Burdick & Sons, 72 Hamilton street, has awarded a contract for the erection of a factory building, 100 x 250 feet.

BINGHAMTON, N. Y.—The Fairbanks Co. will build a foundry here soon.

BROOKLYN.—Plans have been completed by N. A. Cantor, 371 Fulton street, for three warehouses for the League Storage Warehouse Co. The proposed structures will be one story, 150 x 150 feet, and will cost $45,000.

BUFFALO—Plans are being revised by the Prest-O-Lite Co. for a charging plant.

BUFFALO.—Plans for the erection of a $100,000 manufacturing plant are being drawn by W. B. Whitney & Co., 38 South Dearborn street, Chicago. The name of the owner has been withheld.

BUFFALO—A $20,000 extension will be made to the punch shed of the Buffalo Dry Dock Co. C. C. Hauck, architect, is drawing plans.

BUFFALO—W. T. Miller, secretary of the National Aniline & Chemical Co., will have charge of an addition to its plant here, to cost $30,000.

BUFFALO—The Metal & Alloys Specialty Co., 25 Illinois street, has had plans prepared for a two-story plant, 60 x 100 feet, on Marion avenue.

BUFFALO.—The Buffalo Union Furnace Co. is altering and improving its plant at an estimated cost of $10,000.

BUFFALO.—A $20,000 extension will be made to the punch shed of the Buffalo Dry Dock Co. C. C. Hauck, architect, is drawing plans.

BUFFALO.—Plans are being revised by the Prest-O-Lite Co. for a charging plant, which will be comprised of four buildings.

BUFFALO.—The Atterbury Motor Co. contemplates the erection of an addition to its plant. J. R. Spraker, general manager, is in charge of preliminary preparations.

COLLEGE POINT, L. I.—The Empire Art Metal Co. contemplates the erection of a 2-story addition. A. C. Tonnell is in charge of preliminary plans.

DE WITT, N. Y.—Four buildings will be erected by the New York Central railroad at its shops here. The R. W. Smith Corp., 30 Church street, New York City, has the general contract.

FLUSHING BAY, L. I., N. Y.—The Watercraft Construction Co. contemplates making several improvements at its yard here, including the erection of a 1-story, 45 x 140-foot blacksmith shop. Alexander McWhirter, 111 Broadway, New York City, is in charge of plans.

HERKIMER, N. Y.—Plans have been completed for a $50,000 addition to the boiler house of the municipal lighting plant. H. B. Sweet is architect in charge.

NEW YORK CITY—The New York, New Haven & Hartford railroad will erect a 1-story, 40 x 80-foot blacksmith shop.

NEW YORK CITY—The Standard Steel Sections, Inc., is having plans prepared for the erection of

Government Inquiries

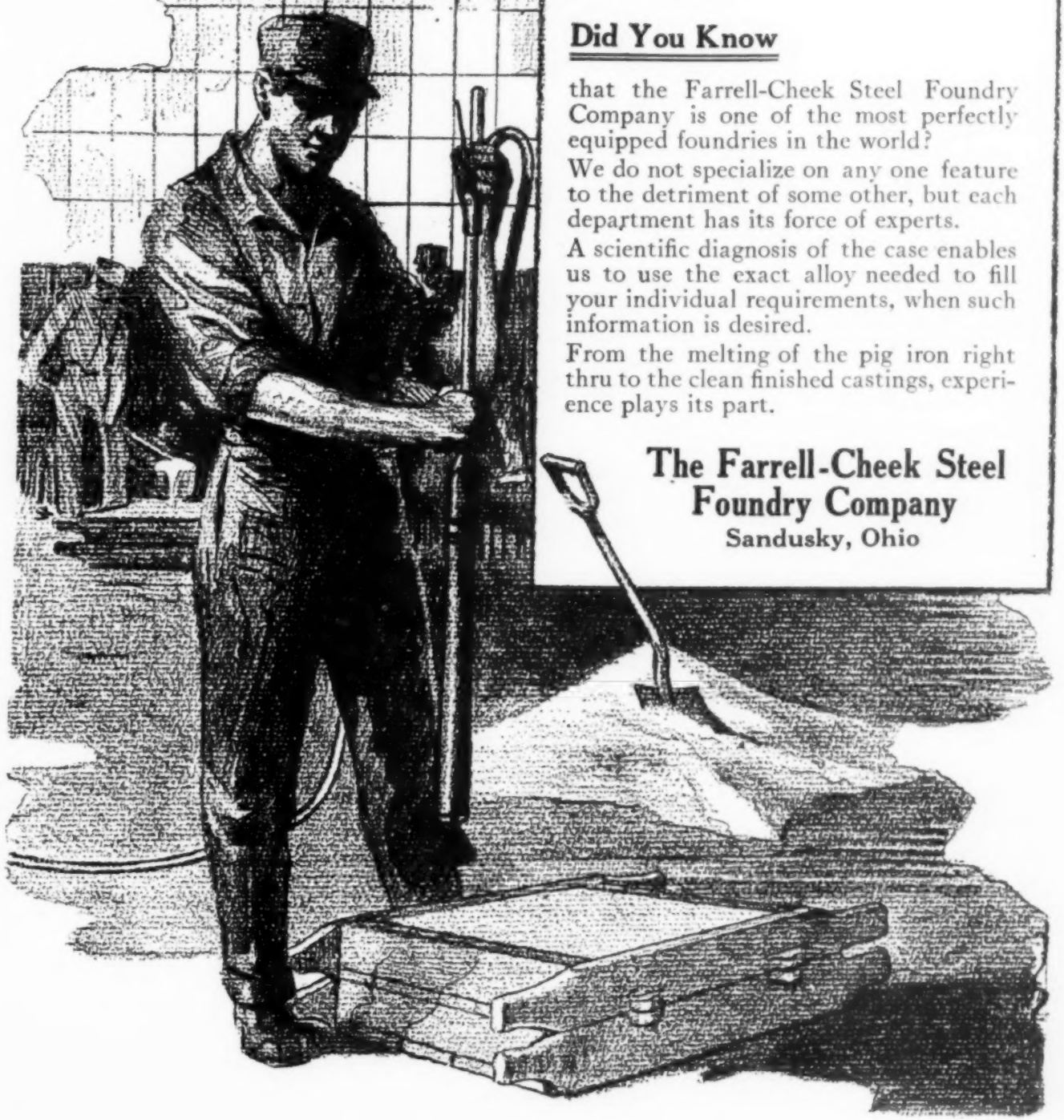
BIDS on the following equipment are desired by the navy department, bureau of supplies and accounts:

Machine tools, including one grinder, drilling hammer, power press and sander, 6677½, San Francisco.
One drilling machine, 6754½, Norfolk.
One squaring shear, 6770½, Philadelphia.
One sensitive drill, 6783½, Washington.
Machine tools, including two lathes and bench tools, 6784½, Newport.
One bench lathe, 6785½, Norfolk.
Two precision lathes, 6786½, Washington.
Two sensitive drills, 6788½, Washington.
One 2-wheel grinder, 6787½, Key West.
One metal forming machine and punch and shear, 6802½, Washington.
One bench grinder, 6803½, Washington.
Machine tools, including one brake and folder, forming machine and slitting shears, 6810½, Brooklyn.
Eight vertical drills, 6822½, Washington.
72 electric portable drills, 6839½, Mare Island.
One head drill, 6840½, Newport.
10 chain hoists, 6851½, Brooklyn.
Wiring, grooving, shearing and turning machines, 6885½, Boston.
Two electric hoists, 6891½, Boston.

Schedule numbers, dates of opening and places of delivery follow the specifications of the tools.

FARRELL

STEEL CASTINGS



Did You Know

that the Farrell-Cheek Steel Foundry Company is one of the most perfectly equipped foundries in the world?

We do not specialize on any one feature to the detriment of some other, but each department has its force of experts.

A scientific diagnosis of the case enables us to use the exact alloy needed to fill your individual requirements, when such information is desired.

From the melting of the pig iron right thru to the clean finished castings, experience plays its part.

The Farrell-Cheek Steel Foundry Company
Sandusky, Ohio

an addition to its plant, 50 x 200 feet, to cost $10,000.

NEW YORK CITY.—The Ordnance Engineering Corp. recently let a contract for the erection of an addition, 60 x 60 feet, to cost $10,000.

NIAGARA FALLS, N. Y.—The Ferguson Iron & Steel Co. has started work on a $10,000 mill addition for the Norton Co., Worcester, Mass., one story, 40 x 60 feet.

OSWEGO, N. Y.—Bids now are being received by the Hessler Foundry & Machine Co. on a 60 x 250-foot foundry addition.

PHOENIX, N. Y.—Plans have been completed for a 3-story, 50 x 200-foot silk mill which will be erected here for John Dunlop's Sons, 254 Fourth avenue, New York City.

POUGHKEEPSIE, N. Y.—The Poughkeepsie Cultery Works contemplates erection of an addition. According to plans by the company's engineering department, the extension will be four stories, 75 x 125 feet.

ROCHESTER, N. Y.—The Palmer Marsey Co. will build a $15,000 woodworking plant here.

ROCHESTER, N. Y.—The Rochester Box & Lumber Co. has let the contract to Seitz & Laging for a planing mill, to cost $30,000.

ROCHESTER, N. Y.—The Rochester Can Co. has let the contract to W. Kenney, 86 Frost avenue, for a 1-story addition, 180 x 200 feet, to its plant here, to cost $40,000.

TONAWANDA, N. Y.—The Pierce-Arrow Motor Car Co. contemplates the erection of a testing shop, assembling plant and a boiler house.

UTICA, N. Y.—The Frisbie & Stansfield Knitting Co. will build an addition to its plant here soon.

WATERVLIET, N. Y.—The Ludlum Steel Corp. contemplates the erection of a steel plant on Spring street here.

BELLEFONTE, PA.—The American Lime & Stone Co. is having plans prepared for the erection of a plant at a cost of $40,000.

BOSWELL, PA.—The Jenner Fuel Co., capital $30,000, has been incorporated by Frank D. Allen, Forrest L. Ferrell, Boswell; Thomas S. Sanner, Fred W. Schleger and Angus W. Lowther, Jennertown, Pa.

BROOKVILLE, PA.—The Sandy Hollow Coal Co., capital $75,000, has been incorporated by John E. Geist, Ira J. Campbell, J. G. Sterner and J. B. Henderson, Brookville.

CHAMBERSBURG, PA.—A 1-story, 85 x 212-foot erecting shop will be constructed here by the Cumberland Valley railroad.

CHESTER, PA.—J. J. Puckrin is contemplating the erection of a 1-story, 25 x 100-foot machine shop.

CLAYTONIA, PA.—The Welborn Coal Co., capital $50,000, has been incorporated by Wallace W. Wekler, Pittsburgh; E. J. Kraeger, Avalon; William P. Welker, Ben Avon Heights.

CONNEAUTVILLE, PA.—The Burke Electric Co., Erie, Pa., has brought 25 acres on the Bessemer railroad near here and will build a modern plant.

McKEESPORT, PA.—A testing plant is to be erected on a site near the foot of Erie street, by a group of Pittsburgh men, who desire to test out a new process of metal manufacture. Detailed plans will be announced later.

ERIE, PA.—The Erie Specialty Co. has let a contract for the erection of a building, 53 x 165 feet.

ERIE, PA.—The Lackawanna Bridge Co. has let the contract to F. C. Kirkpatrick, Titusville, Pa., for two shipbuilding plants 60 x 100 and 60 x 80 feet.

ERIE, PA.—The Brown Folding Machine Co. has had plans prepared for the erection of a 1-story, 100 x 140-foot factory. It is estimated the plant will cost about $25,000.

EMPORIUM, PA.—The United States government proposes to build a sulphuric acid plant here to cost $2,000,000. Address chairman of war industries board, Washington.

JOHNSTOWN, PA.—The Ideal Coal Co. proposes to increase the capacity of its Sunnyside plant, near here.

LIBRARY, PA.—The Pittsburgh Coal Co. has awarded a contract for the erection of a machine shop and office building.

MILTON, PA.—The government proposes to build a $250,000 power plant here. R. C. Marshall is manager of the construction division of United States army, Washington.

NOXEN, PA.—James K. Mosser, this city, has let the contract for a new tannery.

PHILADELPHIA.—Architects Ballinger & Perrot have prepared plans for the erection of additions to machine shop for the William Cramp & Sons Ship & Engine Building Co.

PHILADELPHIA.—The general contract for a $31,000 blacksmith shop has been awarded by the Wm. Cramp & Sons Ship & Engine Building Co. to F. A. Havens & Co.

PITTSBURGH.—A government permit has been granted the National Tube Co. for the erection at Ellwood City, Pa., of a hotel and 100 dwellings.

JERSEY CITY, N. J.—The Hamilton Machinery Co. has been incorporated with $30,000 capital stock to manufacture and deal in machinery. The incorporators are James B. Hamilton and Alice Hamilton, of Jersey City, and Joseph C. Watson, of East Orange.

PHILADELPHIA.—Fred A. Havens, 845 Nineteenth street, has a contract for the erection of a 1-story plant of F. B. Davis, Indiana avenue. Bids are now being taken.

Business Changes Recently Announced

WITH the statement that it has always been an American concern, incorporated under the laws of the state of New York, and owned and operated by Americans, the Swedish Iron & Steel Corp. announces its consolidation with the Federal Tool & Alloy Steel Corp., under the name of the latter. As heretofore the general offices are at 12 Platt street, New York City, and branch offices are in Brooklyn, Chicago, Cleveland and New Orleans. Prior to May, 1915, the Swedish Iron & Steel Corp. had imported exclusively Swedish iron and steel products. Subsequent to that date, the company enlarged its scope of business to distribute American iron and steel products as well, and in 1917, the Federal Tool & Alloy Steel Corp. was incorporated. The consolidation is to more clearly define the character of the company's business.

The Victor Aircraft Corp., Freeport, L. I., N. Y., is the new name of the A. S. Heinrich Corp.

* * *

The Speakman Supply & Pipe Co., Wilmington, Del., has been changed to the Speakman Co.

* * *

The Arthur Knapp Engineering Corp., New York, has moved its executive offices to the Architects building, Park avenue at Fortieth street.

* * *

The Koppel Industrial Car & Equipment Co. is the name of the subsidiary of the Pressed Steel Car Co., which bought the business of the Orenstein Arthur Koppel Co., Koppel, Pa., from the alien property custodian.

* * *

The Cleveland Galvanizing Works Co., Cleveland, has changed its name to the Chain Products Co.

The Kerr Machinery & Supply Co., Detroit, has changed its name with no change in managing personnel, to the Kerr Machinery Corp.

* * *

The Graf-Webb Iron Mfg. Co., Louisville, Ky., which operates a stove foundry, has changed its name to the Progress Stove & Range Co.

* * *

The Zin-Ho Mfg. Co., manufacturer of portable air compressors, 343 South Dearborn street, Chicago, has changed its name to the Zin-Ho Brunner Foundry & Machinery Co.

* * *

The United Alloy Steel Corp., Canton, O., has moved its general offices from Belden avenue N. E., to Eighth street extension S. E.

* * *

The Westinghouse Electric & Mfg. Co., New York, has leased a floor at 110 West Forty-second street for new offices.

Central States Activities

BARABOO, WIS.—Tentative plans for the erection of two steel and concrete bridges over the Wisconsin river have been ordered prepared by the Baraboo council.

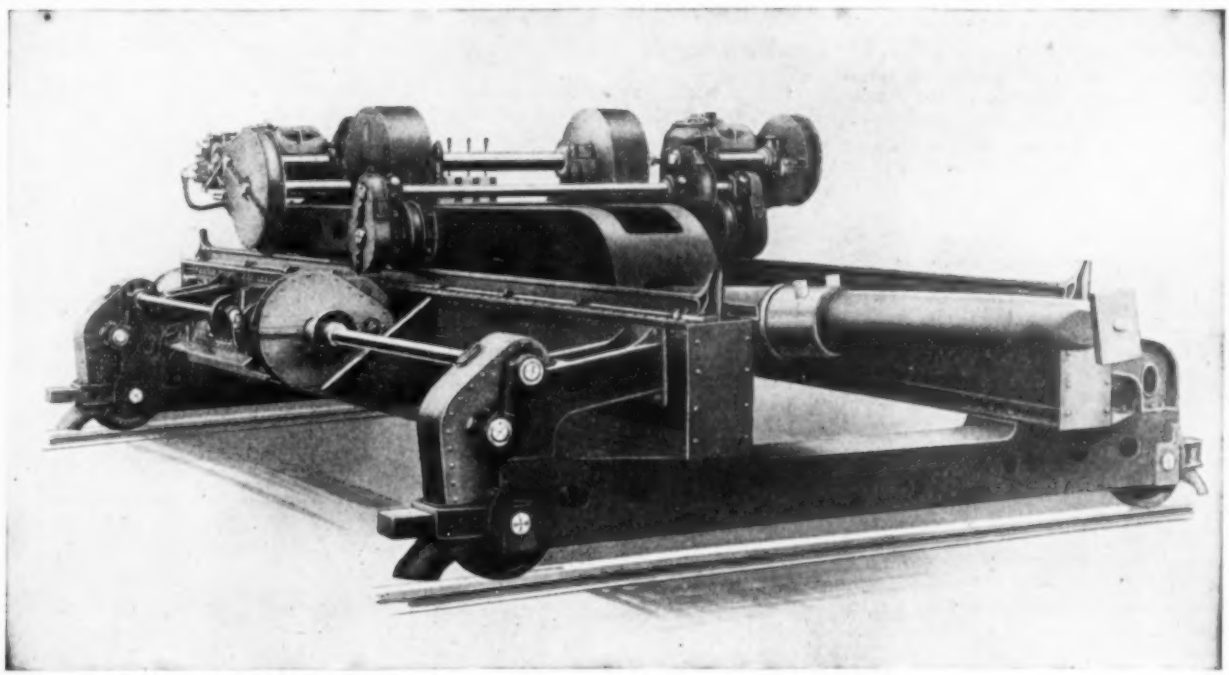
DE PERE, WIS.—The De Pere Mfg. Co. plans the erection of an addition to its boiler shop, 100 x 100 feet, to be provided with a 30-ton electric crane.

HARTFORD, WIS.—The International Steel Products Co. has awarded the contract for the erection of a 2-story, 68 x 125-foot factory at an estimated cost of $35,000.

KENOSHA, WIS.—The Walter Engineering Co. re-

W S M

STEEL PLANT EQUIPMENT
COKE OVEN MACHINERY
GAS PRODUCERS
ORE AND COAL HANDLING MACHINERY
SPECIAL CRANES
MINING MACHINERY
HYDRAULIC TURBINES



Charging Machines

The Wellman-Seaver-Morgan Company originated, first built, developed, and for many years was the sole constructor of mechanical chargers for open hearth furnaces.

The W-S-M Low Type Charger is pictured above. Some conditions indicate the use of the High Type Charger or the Crane Type.

We are prepared to build a special machine for your particular requirements.

Bulletin A 7, "W-S-M Charging Machines and Manipulators," will be sent on request.

THE WELLMAN-SEAVER-MORGAN CO.

CLEVELAND, OHIO, U.S.A.

cently incorporated with $25,000 capital, plans the erection of a factory.

KENOSHA, WIS.—A 1-story brick and concrete addition, 50 x 100 feet, is being erected by the Kenosha Boiler & Structural Iron Co.

KENOSHA, WIS.—The Walter Engineering Co., capitalized at $25,000, has been chartered by A. H. Walter, E. M. Walter and Ferdinand C. Walter, and will build a machine shop costing about $20,000.

KOHLER, WIS.—The Kohler Co. is contemplating the erection of a cupola house addition, 50 x 100 feet. The general contract has been let to Architects Brust & Phillipp, 405 Broadway street, Milwaukee.

MILWAUKEE—The Universal Cement Mold Co., 707 Merrill building, plans the erection of a 1-story factory, to cost $25,000.

MILWAUKEE.—The Argo Mining Co. has increased its capital from $75,000 to $100,000 and contemplates improvements to its plant.

MILWAUKEE.—Plans for construction and equipment of a large steam generating plant are being drawn for the Milwaukee Electric Railway & Light Co.

MILWAUKEE.—The Milwaukee Tack Co., Layton Park, Milwaukee, is contemplating the erection of an addition.

MILWAUKEE.—The Loeffelholz Co. recently awarded a contract to Fred Jaeger, 447 Eighteenth street, to repair its brass foundry, recently damaged by fire. The work will cost $10,000.

OSCEOLA, WIS.—The Osceola Milling Co. contemplates the erection of a 4-story addition to its hydro-electric power and milling plant. The building will be 30 x 87 feet and will be erected by the Millford Mfg. Co., 303 South Third Street, Minneapolis.

PORTAGE, WIS.—A new lathe and other machinery tools will be installed in the division shops of the Chicago, Milwaukee & St. Paul railroad here.

WEST ALLIS, WIS.—The plant of the Modern Steel Treating Co. recently was damaged by fire when an overheated tank exploded. The damaged building was 1-story, 30 x 80 feet.

BAY CITY, MICH.—The Industiral Works has let a contract for the construction of a 1-story car shop, 117 x 260 feet.

BAY CITY, MICH.—The Dafoe Shipbuilding Co. is building a plant here for the construction of steel tugs. The main building of the plant is to be 60 x 200 feet.

DETROIT.—The Michigan Malleable Iron Co. is in the market for a pulley lathe with a 36-inch swing.

DETROIT.—The Hudson Motor Car Co. contemplates the erection of a plant, 60 x 460 feet, for the manufacture of shells.

GRAND RAPIDS, MICH.—The Grand Rapids Brass Co., 90 Scribner avenue, N. W., is having plans prepared for a 3-story plant. Osgood & Osgood are the architects.

HOWELL, MICH.—The Spencer-Smith Machine Co. plans the erection of a 1-story munition factory of 6000 square feet.

LANSING, MICH.—The Gier Pressed Steel Co., B. G. Gier general manager, will build a 1-story foundry, 98 x 200 feet, to cost $75,000.

NEW BUFFALO, MICH.—The Pere Marquette railroad is building a 16-stall roundhouse, a 90-foot turntable and a machine shop here at an estimated cost of $160,000.

PONTIAC, MICH.—The Wilson Foundry & Machine Co., David Wilson manager, will build an addition, 100 x 400 feet, to cost $10,000.

CHICAGO—The Interstate Iron & Steel Co., 104 South Michigan avenue, will build a 2-story machine shop, 50 x 120 feet.

DECATUR, ILL.—The Decatur Bridge Co. is building a 28 x 93 x 100-foot addition to its machine shop at an estimated cost of $15,000.

EAST MOLINE, ILL.—Deere & Co., manufacturer of agricultural implements, is building an addition to its plant at an estimated cost of $300,000.

EAST PEORIA, ILL.—The Holt Mfg. Co. has awarded a contract for the erection of several additions to its plant.

GALESBURG, ILL.—The Dependable Truck & Tractor Co. is building a new plant here.

KENSINGTON, ILL.—The American Steel & Machinery Co. is building a new shell plant.

EAST CHICAGO, IND.—L. W. Dunn, engineer, is taking bids for the erection of a pumping station and boiler house for the International Lead Co., 30 x 60 feet and 8 x 10 feet.

INDIANAPOLIS—The Mid-West Engine Co. is building a 1-story plant, 80 x 460 feet, for the manufacture of turbine engines to cost $350,000.

ASHTABULA, O.—The city council has passed an ordnance authorizing the issuance of bonds for $140,000 to cover the city's share of the cost of building the Center street subway.

CINCINNATI.—The Peters Cartridge Co. has awarded a contract for remodeling a group of buildings on Linwood street here.

The Pacific Northwest

EVERETT, WASH.—The port commission engineer has made soundings of the harbor and states that the Great Northern dock can be extended fully 2000 feet.

SEATTLE—The Rotary Engine Co. has been incorporated with $250,000 capital by W. H. Pierson and N. A. Christof.

SEATTLE—The J. H. Price Shipbuilding Co. recently was incorporated by J. L. McLean, J. P. Rudd and R. G. Denney with $60,000 capital.

SEATTLE—The Ames Shipbuilding Co. is reported to be contemplating the erection of an addition to its pipe shop, to cost $7000.

SEATTLE—The Seattle North Pacific Shipbuilding Co. is contemplating the erection of a pipe shop at a cost of $6500.

SEATTLE—The West Coast Machinery Co. has been incorporated by Rozalie Zeeve, Dora Zeeve and Archie Krom with $25,000 capital.

SEATTLE—A contract has been awarded Peter Gjarde, Empire building, by the Pacific Forge Co., to build a heavy-timbered addition to its plant. Plans for the erection of the building have been made.

SPOKANE, WASH.—The government is reported to be ready to accept the offer of the Washington Water Power Co., to establish a $500,000 nitrate plant here.

SPOKANE, WASH.—It is reported that the Washington Water Power Co. is contemplating the erection of a power plant here to cost about $3,000,000.

TWISP, WASH.—The Twisp Roller Mills & Power Co. recently was incorporated with $30,000 capital by H. C. Lewis, Harry C. Lewis and J. M. Pate.

MARSHFIELD, ORE.—The California & Oregon Co. is planning to build a logging road from Chete river to Pistol river.

PORTLAND, ORE.—The Washington Railroad & Navigation Co. is contemplating the erection of a plate shop. It is estimated the building will cost about $67,000.

OAKLAND, CAL.—The American Manganese Steel Co., care J. W. Plant, 1433 California street, is planning to build a steel foundry to cost $500,000.

Business In Canada

ESQUIMALT, B. C.—The Esquimalt Ship Co. will build a shipyard to cost about $200,000, for which plans have been prepared.

IOCO, B. C.—The Imperial Oil Co., Vancouver, B. C., will build an addition to its refineries at Ioco, to cost about $200,000.

MARPOLE, B. C.—Grahams, Ltd., Belleville, Ont., will build a dehydrating plant addition here to cost $40,000. Jamieson Bone, Belleville, Ont., is in charge.

NEW WESTMINSTER, B. C.—Work is under way for additions and alterations to the plant of the Lumber Products, Ltd., Brunette street, which will cost $120,000.

PORT MOODY, B. C.—The mill owned by the Port Moody Shingle Mill Co. was damaged by fire with a loss of $10,000. The company will rebuild and will require new machinery.

BROCKVILLE, ONT.—Fire badly damaged the plant of the Canada Carriage Works, Oct. 27. The loss to buildings and equipment will amount to $500,000. It is expected the company will rebuild.

BRANTFORD, ONT.—The Consolidated Machine & Tool Co. has been incorporated with $500,000 capital stock to manufacture machinery, tools, etc.

BRANTFORD, ONT.—The Consolidated Tool & Machine Co., Ltd., has been incorporated to manufacture machinery, tools, supplies, shells, munitions, war material, iron, steel, etc., with $500,000 capital stock, by Willoughby S. Brewster, George D. Heyd and others, all of Brantford, Ont.

GODERICH, ONT.—The National Shipbuilding Co. is about to start work on a 1-story concrete and brick boiler shop to cost $75,000. The company is in the market for machinery and equipment for the plant.

GUELPH, ONT.—The Page-Hersey-Iron & Tube Co., York road, will build an addition to its munition plant, to cost $60,000.

HAMILTON, ONT.—The Petrie Mfg. Co., Ltd., has been incorporated to take over the business now being carried on under the name of the Petrie Mfg. Co., Ltd., to manufacture machinery, implements, tools, equipment, etc., with a $2,000,000 capital stock, by Alexander B. Petrie Sr., Guelph, Ont.; George R. and Alexander B. Petrie Jr., Hamilton, Ont., and others.

PEMBROKE, ONT.—The Pembroke Iron Works, Ltd., is erecting an addition to its plant, of mill construction, 142 x 620 feet.

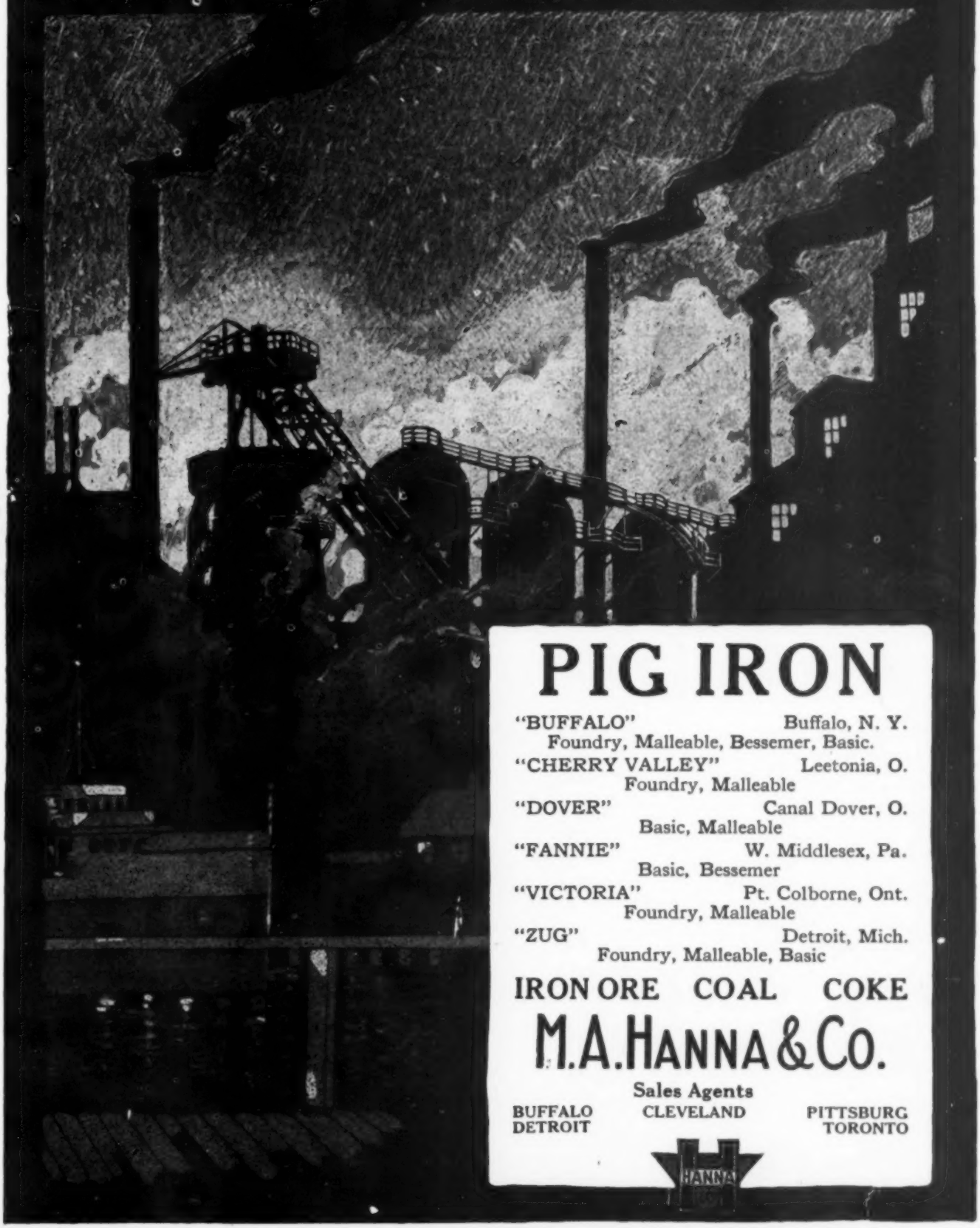
PORT COLBORNE, ONT.—The Port Colborne Supply Co., Ltd., has been incorporated to manufacture machinery, electrical supplies, plumbers' tools and equipment, etc., by Charles E. Steele, Herman H. Ott, Harry Shore and others, all of Port Colborne.

TORONTO, ONT.—The British-American Shipbuilding Co. has awarded the contract for a 40-foot angle furnace, to be equipped with oil burners.

TORONTO, ONT.—The Gray Mfg. & Machine Co., 688 St. Clarens avenue, will start at once on an addition to its machine shop.

ST. JOHN, N. B.—George Wilson, Box 444, is in the market for a Wheelock engine, 11 x 30, left hand.

HANNA



PIG IRON

"BUFFALO" Buffalo, N. Y.
Foundry, Malleable, Bessemer, Basic.

"CHERRY VALLEY" Leetonia, O.
Foundry, Malleable

"DOVER" Canal Dover, O.
Basic, Malleable

"FANNIE" W. Middlesex, Pa.
Basic, Bessemer

"VICTORIA" Pt. Colborne, Ont.
Foundry, Malleable

"ZUG" Detroit, Mich.
Foundry, Malleable, Basic

IRON ORE COAL COKE

M. A. HANNA & Co.

Sales Agents

BUFFALO CLEVELAND PITTSBURG
DETROIT TORONTO

HANNA

Iron and Steel Prices

Corrected to Tuesday Noon

IRON ORE

Superior Ores, Per Ton, Lower Lake Ports	
Old range Bessemer, 55 iron	$6.65
Mesabi Bessemer, 55 iron	6.40
Old range non-Bess., 51½ iron	5.90
Mesabi non-Bess., 51½ iron	5.75

WAREHOUSE PRICES

Steel bars, Chicago	4.17c
Steel bars, Cleveland	4.07c
Steel bars, Detroit	4.13c
Steel bars, Philadelphia	4.13c
Steel bars, New York	4.145c
Steel bars, St. Louis	4.24c
Steel bars, Cincinnati	4.13c
Steel bars, St. Paul	4.395c
Steel bars, Buffalo	4.10c
Iron bars, Buffalo	4.70c
Iron bars, Chicago	4.77c
Iron bars, Cleveland	4.67c
Iron bars, Detroit	4.75c
Iron bars, St. Louis	4.84c
Iron bars, Cincinnati	4.13c
Iron bars, Philadelphia	4.73c
Iron bars, New York	4.745c
Shapes, Chicago	4.27c
Shapes, Detroit	4.23c
Shapes, St. Louis	4.34c
Shapes, St. Paul	4.495c
Shapes, New York	4.245c
Shapes, Cleveland	4.17c
Shapes, Philadelphia	4.23c
Shapes, Buffalo	4.20c
Shapes, Cincinnati	4.23c
Plates, Buffalo	4.45c
Plates, Chicago	4.52c
Plates, Detroit	4.48c
Plates, St. Louis	4.59c
Plates, St. Paul	4.745c
Plates, New York	4.495c
Plates, Cleveland	4.42c
Plates, Philadelphia	4.48c
Plates, Cincinnati	4.48c
No. 10 blue anl. sheets, Chicago	5.52c
No. 10 blue anl. sheets, Cleveland	5.42c
No. 10 blue anl., Buffalo	5.45c
No. 10 blue anl. sheets, St. L.	5.59c
No. 10 blue anl. sheets, Cincinnati	5.48c
No. 10 blue anl. sheets, St. Paul	5.745c
No. 10 blue anl. sheets, Detroit	5.48c
No. 28 black sheets, Chicago	6.52c
No. 28 black sheets, Cleveland	6.42c
No. 28 black sheets, Cincinnati	6.48c
No. 28 black, Detroit	6.48c
No. 28 black sheets, St. L.	6.59c
No. 28 black sheets, St. Paul	6.745c
No. 28 galv. sheets, Chicago	7.77c
No. 28 galv. sheets, Cleveland	7.67c
No. 28 galv. sheets, Cincinnati	7.73c
No. 28 galvanized, Detroit	7.73c
No. 28 galv. sheets, St. L.	7.84c
No. 28 galv. sheets, Buffalo	7.70c

IRON AND STEEL SCRAP

(Prices in Gross Tons)

STEEL WORKS USE

Bund'ed sheets, Cincinnati	$26.00 to 26.50
Bundled sheets, Pittsburgh	28.00 to 29.00
Bundled sheets, Cleveland	26.00 to 27.00
Bundled sheets, Buffalo	25.00 to 26.00
Boiler plate, cut, No. 1, Chicago	28.00 to 28.50
Boiler plate, cut, No. 1, St. Louis	26.50 to 27.00
Frogs, switches, guards, St. Louis	28.50 to 29.00
Frogs, switches, guards, Chicago	29.00
Heavy melting steel, Pittsburgh	29.00
Heavy melting steel, Buffalo	30.00
Heavy melting steel, Chicago	29.00
Heavy melting steel, Cleveland	29.00
Heavy melting steel, Cincinnati	28.50 to 29.00
Heavy melting steel, east. Pa.	28.00 to 29.00
Heavy melting steel, N. Y.	26.00
Heavy melting steel, St. L.	28.50 to 29.00
Heavy melting steel, Birmingham	25.00 to 26.00
Baled sheets, Cleveland	28.50 to 29.00
Baled sheets, Pittsburgh	28.00 to 29.00
Baled sheets, Chicago	29.00
Knuckles, couplers, Chicago	34.00
Knuckles, couplers, St. Louis	33.00 to 33.50
Low phos. steel, Buffalo	37.50
Low phos. steel, Pittsburgh	39.00
Low phos. crops, eastern Pa.	39.00
Low phos. guaranteed E. Pa.	36.50
Shoveling steel, Chicago	29.00
Shoveling steel, St. Louis	28.00 to 28.50
Steel rails, short, Chicago	34.00
Steel rails, short, Cleveland	34.00
Steel rails, short, St. Louis	32.50 to 33.00
Steel rails, old, Birmingham	28.00 to 29.00
Stove plate, Chicago	28.00 to 29.00
Stove plate, Cincinnati	24.00 to 24.50
Stove plate, St. Louis	25.50 to 26.00
Stove plate, N. J. points	27.25
Stove plate, Birmingham	25.00 to 26.00
Stove plate, Buffalo	28.50 to 29.00
Stove plate, eastern Pa.	29.00
Stove plate, Cleveland	25.00 to 25.50
Stove plate, Pittsburgh	29.00

Freight Rates, Pig Iron

Mahoning and Shenango valleys to:	
Cleveland	$1.40
Newark, N. J.	4.40
Boston	4.60
Philadelphia	4.10
Pittsburgh	1.40
St. Louis	4.60
Minneapolis, St. Paul	5.70
Buffalo to:	
Albany, N. Y.	$1.75
New England (rail)	3.90
New York and Brooklyn (rail)	3.90
Virginia furnaces to:	
Philadelphia	$4.10
New England	4.70
Brooklyn, Jersey City, Newark	4.40
Birmingham, Ala., to:	
Boston	$8.00
Cincinnati	3.60
Chicago	5.00
Cleveland	5.00
Louisville, Ky.	3.30
Minneapolis, St. Paul	7.30
New York	7.70
Philadelphia	6.50
Pittsburgh	6.10
Savannah, Ga.	3.40
St. Louis	4.25
Chicago to:	
Des Moines	$3.50
Minneapolis, St. Paul	2.50
Milwaukee	.60
Moline, Ill.	1.40
Omaha	4.50
St. Louis	1.90
Ironton and Jackson, O., to:	
Chicago	$3.75
Cincinnati	1.75
Cleveland	2.40
Detroit	2.60
Indianapolis	2.30
Minneapolis, St. Paul	5.70

Freight Rates, Finished Material

Pittsburgh, carloads, per 100 lbs., to:	
New York	24.5 cents
Philadelphia	23.0 cents
Boston	27.0 cents
Buffalo	21.5 cents
Baltimore	22.5 cents
Cleveland	17.0 cents
Cincinnati	23.0 cents
Chicago	27.0 cents
Detroit	23.0 cents
Minneapolis and St. Paul	49.5 cents
Denver	$1.09
St. Louis	33.5 cents
New Orleans	38.5 cents
Birmingham	57.5 cents
Pacific coast (all rail)	$1.25
Pacific coast (tin plate)	1.25

IRON MILL USE

Busheling, No. 1, Cleveland	30.00 to 31.00
Busheling, No. 1, Buffalo	29.00 to 30.00
Busheling, No. 1, Pittsburgh	30.00 to 30.50
Busheling, No. 1, Cincinnati	27.00 to 27.50
Busheling, No. 1, Chicago	30.00 to 30.50
Busheling, No. 2 Chgo.	21.50 to 22.50
Busheling, No. 1, St. Louis	29.00 to 29.50
Cast borings, New York	16.75 to 16.90
Cast borings, eastern Pa.	19.00
Cast borings, Buffalo	18.00 to 19.00
Cast borings, Cleveland	18.50 to 19.00
Cast borings, Cincinnati	17.00 to 18.00
Cast borings, Pittsburgh	19.00
Cast borings, Birmingham	17.00 to 19.00
Cast borings, Chicago	18.00 to 19.00
Cast borings, St. Louis	18.50 to 19.00
City wrought, long, N. Y.	30.00
Cut forge, Chicago	32.00 to 32.50
Forge No. 1, eastern Pa.	28.00 to 29.00
Grate bars, Buffalo	27.50 to 28.00
Grate bars, Cleveland	25.50 to 26.00
Grate bars, N. J. points	27.25
Iron axles, Pittsburgh	46.50
Iron axles, Cincinnati	43.50 to 44.00
Iron axles, Cleveland	46.50
Iron axles, Chicago	46.50
Iron axles, eastern Pa.	46.50
Iron axles, St. Louis	46.00 to 46.50
Iron axles, Buffalo	45.00 to 47.00
Iron rails, Chicago	39.00
Iron rails, Buffalo	36.00 to 37.00
Iron rails, Cincinnati	34.50 to 35.00
Iron rails, St. Louis	38.50 to 39.00
Iron rails, Cleveland	37.00 to 38.00
Machine turnings, Cincinnati	18.00 to 18.50
Machine turnings, Cleveland	18.50 to 19.00
Machine turnings, Buffalo	18.00 to 18.50
Machine turnings, N. Y.	16.75 to 16.90
Machine turnings, Pittsburgh	18.00 to 19.00
Machine turnings, east. Pa.	19.00
Machine turnings, Birmingham	16.00 to 17.50
Machine turnings, Chicago	18.00 to 19.00
Machine shop turnings, St. Louis	18.50 to 19.00
Pipes and flues, Cleveland	28.00 to 29.00
Pipes and flues, Chicago	28.50 to 29.00
Pipes and flues, St. Louis	27.50 to 28.00
R. R. mach. cast, No. 1, Buffalo	34.00
R. R. wrgt. No. 1, Buffalo	34.00
R. R. wrgt. No. 1, east Pa.	34.00
Railroad wrgt. No. 1, Cincinnati	33.50 to 34.00
Railroad wrgh., No. 1, Cleveland	33.50 to 34.00
R. R. wrought, No. 1, Pittsburgh	34.00
Railroad wrgt., No. 2, Chicago	32.00 to 32.50
Railroad wrought, No. 1, Chicago	33.50 to 34.00
R. R. wrought, No. 1, Birmingham	29.00 to 39.00
No. 1 yard wrought, Eastern Pa.	33.00
No. 1 bushelings wrgt., East. Pa.	31.00
Sheet wrought, Pittsburgh	34.00
Railroad wrgt., No. 1, St. Louis	33.00 to 33.50
Railroad wrought, No. 2	32.00 to 32.50
Wrought pipe, Buffalo	27.00 to 28.00
Wrought pipe, East. Pa.	33.00
Wrought pipe, ungraded, East. Pa.	29.00

IRON OR STEEL WORKS USE

Axle turnings, Cleveland	$24.00
Axle turnings, Buffalo	24.00
Heavy axle turnings, East. Pa.	24.00
Heavy axle turnings, Pitts.	24.00
Shafting, New York	35.50
Shafting, East. Pa.	39.00
Steel car axles, Birmingham	38.00 to 40.00
Steel car axles, Pittsburgh	46.50
Steel car axles, New York	43.00
Steel car axles, Buffalo	44.00 to 46.00
Steel car axles, Cleveland	44.00
Steel car axles, East. Pa.	46.50
Steel car axles, Chicago	46.50
Shafting, St. Louis	38.00 to 39.00
Steel car axles, St. Louis	46.00 to 46.50

IRON FOUNDRY USE

Car wheels (iron), Pittsburgh	$29.00
Car wheels (steel), Pittsburgh	34.00 to 35.00
Car wheels, East. Pa.	29.00
Car wheels, Buffalo	29.00
Car wheels, Chicago	29.00
Car wheels, St. Louis	28.50 to 29.00
Car wheels, Birmingham	29.00 to 30.00
Car wheels, Cleveland	30.00
Tram car wheels, Birmingham	27.00 to 29.00
Cast, No. 1, Birmingham	28.00 to 29.00
Cast No. 1, cupola, East. Pa.	34.00
Cast, No. 1, Cleveland	32.50 to 33.50
Cast, No. 1, Cincinnati	33.00 to 34.00
Cast, 1, heavy, New York	32.25 to 32.50
Cast, 1, machv., New York	32.25 to 32.50
Cast, No. 1, Chicago	33.00 to 34.00
Cast, No. 1, Pittsburgh	32.50 to 33.00
Cast, No. 1, St. Louis	32.00 to 32.50
Malleable, Cincinnati	30.00 to 34.00
Malleable, Cleveland	33.00 to 33.50
Malleable, Buffalo	29.00 to 34.00
Malleable, Pittsburgh	33.00 to 34.00
Malleable, East. Pa.	29.00
Malleable, cupola, East. Pa.	33.00
Malleable, railroad, Chicago	33.00 to 34.00
Malleable, agricultural, Chicago	33.00 to 33.25
Malleable, railroad, St. Louis	31.25 to 31.75
Malleable, agricultural, St. Louis	29.50 to 30.00

MISCELLANEOUS USES

Boiler punchings, Chicago	36.00 to 36.50
Reroll. rails, 5 ft. and over, Pitts.	34.00
Reroll. rails, 5 ft. and over, Chi.	34.00
Reroll. rails, 5 ft. and over, E. Pa.	34.00
Reroll. rails, 5 ft. and over, St. L.	33.50 to 34.00
Reroll. rails, 5 ft. or over, Cleve.	34.00
Rerolling rails, long, Birmingham	37.50 to 38.50
Locomotive tires, Chicago	45.50 to 46.50
Locomotive tires, St. Louis	42.50 to 43.00